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Research and Its Value to the Practitioner*

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When your most enthusiastic and efficient Secretary invited me to be present here to-day to read a paper before this Society, I readily consented because after 33 years' overseas service I welcomed the opportunity of meeting old friends and making new ones. But when I came to consider what I should speak to you about I was somewhat perturbed, for after so long an absence from Great Britain I felt I might fail to interest the general practitioner at home. However, I decided to do my best, and from my somewhat extensive and possibly unique experience in the field and in the laboratory, to address you on the subject suggested by your Secretary, namely, "Research and its value to the Practitioner."

"It takes all sorts to make a world" and, I think you will agree, "it takes all sorts to make a profession." This is particularly so in the case of the veterinary profession where we have so many different but inter-dependent units. Thus there are the general practitioners, the specialists, the veterinary inspectors, the veterinary administrators, laboratory workers and those who profess to be and call themselves research workers—and, if I may venture to say so, each is apt to look upon the other with suspicion. The general practitioner, up to his waist in honest mud, scorns the lily-white fingers of the laboratory worker, while the latter scorns the general practitioner's ignorance of the latest thing in nomenclature or the innumerable types and mutations emanating from his cloistered mind. The administrator, in turn, despises the research man who contends that the administrator cannot control or eliminate disease until he, the laboratory worker, has provided an exact scientific knowledge of it.

However, the suspicion is quite unnecessary. In a science such as ours we cannot possess exact knowledge of every branch of it, and we cannot do without each other's ever-ready help and assistance. We are like the pieces of a jig-saw puzzle. Each of us fills our allotted space and it is only when each space is suitably filled that the picture is complete.

What, then, is research? Research, I suggest, is a digging and delving after the truth. There are many forms of research and many types of research workers. There is original research, and there is imitative research. The latter is the more common. There is independent research, subsidised research, and there is official research. There is painstaking detailed research, and there is the sort of research which the man in the field has to carry out in a hurry where quick results are essential. And then, among research workers, there is the patient, plodding worker who is content to labour hour by hour, day by day, counting the twists in the free flagellum of a trypanosome, or evolving strains and types of bacteria—a very ready help in time of trouble; and there is the opportunist who has not time to be patient, but is compelled to satisfy his Government or the public, and to turn out inventions and discoveries like sausages from a machine. Each plays his part; each contributes to the science and art of veterinary surgery and medicine. It has been said by one who takes an interest in veterinary education—although not a member of the profession—and his views have been reiterated by *The Times*, that the right type of young man is not attracted to veterinary research. What, we may ask, is the right type of young man? Is it social fitness that is required or is it an independent allowance from a generous father? We have yet to learn that Pasteur sported an old school tie, or Faraday spoke with an Oxford accent. Unfortunately, veterinary research is not a lucrative branch of the profession; the plums are few and far between. Those fortunate enough to acquire the plums guard them jealously, leaving, as a rule, only the stones for younger and perhaps more ambitious men.

One qualification seems to me to be necessary for veterinary research as for the other arts, namely, some imagination. One has to imagine

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a solution of one's problem, and then, with infinite pains, set to work to prove whether the solution is correct or not. In 99 cases out of a hundred it is not. As one writer has aptly put it, "A good research worker requires an exuberant fertility of ideas and ever-buoyant optimism." And if one is fortunate enough to achieve results or to make discoveries, one should recognise that one is blessed above all men. The element of chance sometimes seems to enter into it. Someone accused Pasteur of being lucky, of discovering things by chance. Pasteur replied, "By chance! Yes! But chance only comes to the mind which is prepared." By which he meant that a good deal of tilling and cultivation of the soil is necessary before the seed of an idea can come to fruition.

In a recent Sunday paper it was stated that invention was the basis of modern industry: in the same way research is the basis of veterinary science. A disease cannot be cured until the cause and effect are scientifically determined: it is only then that the appropriate remedy can be administered with any certainty of success. In the same way disease cannot be controlled and eliminated until the cause, the manner of transmission and other scientific facts have been ascertained. The general practitioner, the administrator and the general public are largely dependent upon the veterinary research worker. But unfortunately they are apt to be suspicious of him and to regard him as too theoretical to be of practical value. They say, knowingly, "An ounce of practice is worth a ton of theory"—and there is an element of truth in this. Nevertheless, "Practice without theory is but routine born of habit" and always liable to become sterile. The veterinary research worker, moreover, should be a very practical man. Few can afford to devote their whole time to theoretical considerations, or lock themselves up in their laboratories. Their problems are related to the beasts of the field, and their time must be spent as much in the field as in the laboratory. In the field, too, they must work hand in hand with the practitioner who has the most intimate knowledge of field conditions and can often guide the research worker along new and profitable paths. There should be no cannibalism in our profession. The research worker should always acknowledge the source of his information, and the general practitioner should not be unmindful of the assistance he has received from the laboratory worker.

The combination of practice and theory may often yield invaluable results and is especially necessary where problems on a large scale have to be rapidly solved. They have, for example, proved of great assistance in the development of our Colonies where unknown diseases, or old diseases under new conditions, have to be rapidly investigated and overcome before the country can progress. Let us take as an example the history of Southern Rhodesia which, 50 years ago was in a state of barbarism but which to-day, thanks largely to the manner in which the diseases of animals have been brought under control, bids fair to become one of the most prosperous of the British possessions overseas. I can speak of this country from over a quarter of a century's practical experience in the field and in the laboratory. I was at one time a District Veterinary Surgeon and later, Director of Veterinary Research. I feel, therefore, that I have an unbiased appreciation of the value of both theory and practice.

In 1904, when I was taken by the late Mr. C. E. Grey as a budding veterinary bacteriologist to Southern Rhodesia, the cattle industry had already been twice decimated by uncontrollable diseases. In 1896, rinderpest had swept through the country from the north, killing the cattle as it went, so that of several millions less than 5 per cent. remained. Mr. Grey, at that time a post office official at Victoria (although a fully qualified veterinary surgeon) was called upon to arrest its progress. And although he hastily created a Veterinary Department, the disease proved beyond control and swept with appalling rapidity through Bechuanaland to the Cape Colony where it was only stayed and finally overcome by the introduction of the bile inoculation of Koch, the glycerinated bile method of Edington, and finally, by the immune serum inoculation resulting from the researches of Koch, Turner, Bordet and Theiler. A triumph for research.

Again, at the beginning of the century, just as the settlers were recovering from the depredations of rinderpest, native rebellions and the Boer War, a second unknown plague in the form of East Coast fever swept through the country. Being mistaken for piroplasmosis or red-water, no attempt was at first made to arrest it. But the appalling mortality soon demonstrated the error of the diagnosis, and the investigations of Koch, Theiler and Robertson disclosed that it was caused by a distinct species of intra-corpuscular parasite subsequently known as *Theileria parva*, having a developmental form known as Koch's blue-body. But this discovery was not sufficient to arrest the disease, and it was not until the researches of Lounsbury, Watkins-Pitchford and others, demonstrated the development of the causal parasite in certain species of ticks, that the system of short-interval dipping, based upon the life cycle of these ticks, revealed a method of control. In Southern Rhodesia to-day, dipping is compulsory and there are thousands of private and official dipping tanks

distributed throughout the country. These help to reduce the number of ticks and incidentally to control not only East Coast fever but other tick-borne diseases. Of these, piroplasmosis and anaplasmosis are the most important because although the indigenous cattle are to a large extent tolerant, better-quality animals, imported for the improvement of the local stock, become infected and, unless previously inoculated, rapidly succumb to natural infection.

Incidentally, a method of setting up a tolerance in such imported animals by inoculation was necessary before importation could be undertaken with any degree of safety, and this inoculation which has been applied to hundreds of high-class animals from Great Britain, was first applied by me to two Sussex bulls presented to me as a personal gift in 1908 by the Sussex Herd-book Society. It may here be mentioned that the piroplasmoses at one time destroyed vast numbers of valuable cattle, horses and dogs, until, as the result of the research of Nuttall and Hadwen, trypan blue was introduced and found to act in a miraculous manner as a specific remedy. Thousands of animals, many almost *in extremis*, have responded to this treatment, which has proved of the greatest value to all South African veterinary practitioners.

About this time, rabies was very prevalent in Southern Rhodesia, and man and animals of most species became infected. The diagnosis and preparation of the anti-rabic cord—most unpleasant and dangerous work—was relegated to a member of our profession. True, he received special duty pay at the rate of ten shillings a week. The disease was only eliminated by the destruction of 64,000 dogs, but how this destruction proved so successful is a mystery, in view of the enormous numbers of kaffir hounds, wild dogs, jackals and even meercats which in South Africa are sometimes "carriers" of this infection. However, in this case, the slaughter policy was successful, although, to my mind, slaughter as a means of controlling any disease, is an admission of ignorance—an ignorance which can only be removed by intensive research.

In 1900, black-quarter or quarter-evil appeared. It was first regarded as "snake-bite" but as it swept through the country as an epizootic, killing old cows of 14 years and calves of 14 days, its real nature was correctly diagnosed. Again the research worker was called to the rescue. The old-fashioned powder vaccine was at first applied but results were uneven. Then "filtrates" were introduced, but these appeared to lose their efficacy on exposure or in transit from America. The aggressins were then tried, with better results, but they were too costly. Finally, I prepared a chloroformed attenuated vaccine which unfortunately proved universally successful. I say, unfortunately, because thereafter it was part of my duty to prepare and issue some 60,000 to 80,000 doses of this vaccine a year; and as the Government charged 3d. a dose for it, and I had to collect the fees, I became a vaccine vendor and pseudo-accountant—honourable appointments which occupied so much of my time that research work became, as it were, a "side-line." I leave it to you, gentlemen, to decide whether Government Research Departments should become vaccine vendors.

Another disease which in 1913 I found was very prevalent in Rhodesia—as in most other civilised countries—was contagious abortion. The causal organism and serological reactions were found to correspond with those obtaining in Great Britain, Kenya, South Africa and elsewhere. Unfortunately in Southern Rhodesia the disease presents some rather unusual features. About 1920 a large number of human beings suffering from a pyrexia of unknown origin were admitted to our hospitals. In four years some 240 cases were recorded and many others no doubt escaped detection. It was found that the inhabitants of farms where contagious abortion existed, and visitors to these farms, became infected with this mysterious complaint. In course of time these cases became less numerous, and it is suggested that as the result of the frequent consumption of infected milk the population acquired some degree of resistance—just as calves which drink the milk of infected cows evince a resistance to infection in later years. A simple method of applying the agglutination test, so simple that the stockman himself could test his own cattle, was introduced with some degree of success. A devitalised vaccine prepared by submitting virulent cultures to chloroform, was issued with what appeared to be favourable results. But these results had to be computed on the basis of field observations and were complicated by the well-known tendency of the disease to "wear itself out." Nevertheless it was remarkable how often the natural process of "wearing out" synchronised with the introduction of the vaccine. As a rule the "wearing out" process only occurs where no new susceptible animals are introduced to a herd, acting as fuel to the smouldering fire. In Southern Rhodesia the disease was at one time included in the list of Scheduled Diseases, but the administrative side of the Veterinary Department finally decided it was impotent to control the disease and withdrew it, leaving the research side to work out its salvation. Just recently, in a human case under my observation for over eight months, I fortunately found that the sulphanilamide

compounds, *e.g.*, proseptasine and sulphonamide P, exert a specific curative effect upon the *Brucellae*—when properly applied. This observation may ultimately prove useful to the practitioner.

At one time, at least one-third of Southern Rhodesia was infested by the tsetse fly which transmits trypanosomiasis to domestic stock, and more rarely to human beings. After the rinderpest epizootic, the "fly" disappeared from the country except from eight small circumscribed areas where for some unknown reason it persisted. Since then it has again extended from these small areas to reoccupy some 20,000 square miles of its pre-rinderpest haunts. It was as the result of the research carried out by Bruce in Zululand in 1895 that the fact that the wild animals in tsetse-infested areas "carried" the trypanosome, was demonstrated; but it remained for Kleine to show that the trypanosome underwent a cyclical development in the tsetse fly which had taken up the parasite in feeding, so that some 20 days after the infecting feed it ejected cyclical forms every time it fed. As the fly is entirely dependent upon blood and requires to feed every second or third day during its life of about three months, such a fly may do a considerable amount of damage. In 1909, after a visit to the Pasteur Institute, Paris, I introduced the antimony treatment which has been applied in most parts of Africa against *T. congolense* infection; it has been the means of saving the lives of thousands of animals and has contributed to the opening up of large areas to beneficial development. In recent years a number of organic preparations such as Bayer 205 have proved effective against other species of trypanosomes such as *T. brucei*, *T. gambiense* and *T. rhodesiense*, the two latter being the causes of human sleeping sickness. One of these, if properly applied, results in the creation of immunity. If a method of setting up immunity against all species of trypanosomes can be discovered, which appears to me to be well within the bounds of possibility, the benefits to be derived are incalculable. In Central Africa alone some 4½ million square miles of possibly valuable territory are held ransom by the tsetse fly, and millions of unfortunate natives die annually of trypanosomiasis. In other parts of the world other forms of trypanosomiasis prevail, such as surra, dourine and mal de caderas, which cause enormous mortality and economic losses. The discovery of a cure for these diseases, or preferably, a method of conferring immunity against them, would open up a large field for the veterinarians whose business it would be to apply them in the field.

In 1931 foot-and-mouth disease suddenly appeared in Southern Rhodesia "like a bolt from the blue." It was probably introduced from Portugese East Africa, which marches with our Eastern border. It presented many unusual features. For example, it was as a rule extremely mild—so mild, indeed, that it was often very difficult to recognise. It became widely disseminated before the Veterinary Department became aware of its presence, and when it was detected and measures of control were adopted, it was often many miles on the wrong side of the cordons. Thus veterinary control became difficult if not impossible. Slaughter, in a country where a large proportion of the cattle belonged to the native inhabitants to whom cattle were the chief means of barter, and where the mildness of the disease rendered it a matter of little importance, was out of the question. Some method of dealing with the disease other than the stereotyped measures adopted in more civilised countries, had to be evolved, and the task was relegated to the Veterinary Research Department. To cut a long story short, I may mention that the disease was so mild and difficult to transmit to local animals that research was held up for some time until I found that it was best transmitted by intra-nasal inoculation. This observation was confirmed in the field, where it soon became apparent that it was only by direct head-to-head contact that infection could be conveyed with certainty. Even when infection was established it was not always manifested by clinical symptoms other than a slight thermal elevation. I found that with the first thermal rise the blood contained appreciable quantities of virus. By collecting blood from suitable animals and injecting it into the noses of susceptible animals, a mild form of infection could be brought about, resulting in a temporary immunity sufficient to protect inoculated animals against reinfection until natural infection had died out. In practice, cattle from infected areas were collected at inoculation camps, were inoculated and detained there until the reaction was complete. They were then released or made use of as a buffer extending between infected and threatened areas. In this way over two million head were inoculated in Southern Rhodesia and the disease was twice controlled. A similar method based upon intra-lingual inoculation was subsequently adopted in Bechuanaland and Northern Rhodesia. It may interest you to learn that although the disease in Southern Rhodesia was so mild, when blood from a typically mild case was collected in glycerine-citrate and sent to Weybridge, it gave rise in a Devon heifer to a characteristic infection of very acute type. The extraordinary exaltation of virulence could not at first be accounted for, but Dr. J. T. Edwards, working with rats at the Lister Institute, appeared to provide an explanation in the fact

that thriving animals react more severely than those that are losing condition. I was present when he was performing his experiments and gained the impression that certain rats which were not receiving an adequate water supply reacted less severely than those which obtained a full supply. This coincided with Rhodesian conditions where for six months in the year no rains fall and the animals suffer sevely from thirst and starvation.

Although the disease was of such low virulence in Southern Rhodesia that mortality was negligible, on two occasions it bid fair to ruin the country. This was due, not to the disease itself, but to the severe and unfair restrictions placed upon our agricultural and pastoral products by our neighbours who debarred transit through their territories. It was a remarkable fact that the disease was confined almost entirely to cattle, and until last year the wild animals were regarded as exempt. It is now definitely asserted that the game can become infected. If this is so it is remarkable that the disease was never known to be disseminated by animals other than cattle, and did not cross the dry bed of the Limpopo River into the Union of South Africa. The successful manner in which the Veterinary Department of Southern Rhodesia dealt with the menace of foot-and-mouth disease is, in a letter, attributed by the Prime Minister, himself a distinguished surgeon, to the assistance afforded by the Veterinary Research Department. Another example, therefore, of the practical application of veterinary research.

Another disease which has severely handicapped Rhodesia since the occupation has been South African horse-sickness which every wet season destroyed most of the horses and mules. Donkeys were more resistant and in times when cattle diseases rendered ox transport impossible, the humble ass came to the rescue. Indeed this despised animal deserves a place in the heterogeneous collection of animals which grace the country's coat of arms. In 1906 Theiler introduced the simultaneous method of inoculating mules but this was not satisfactory for horses. In 1912 I stumbled across a method which proved successful in reducing the mortality of horses from, say, 80 per cent., to 5 per cent. under inoculation, and 5 per cent. on exposure to natural infection. Thereby "hangs a tale" which I cannot inflict upon you to-day. This method was supplanted in 1933 by Alexander's neuro-tropic vaccine method, which is more safe and possibly equally effective. However, my method served its purpose and I have letters from four Commanding Officers of the British South Africa Police thanking me for making that famous regiment "a mounted force"—another example of the practical value of research.

Although the diseases I have enumerated were the major problems there were many other minor ailments which yielded to veterinary research; and I think I should mention that in Southern Rhodesia, where so many animal infections are due to blood and tissue parasites, it is customary for veterinarians and stockmen to take smears and submit them to the veterinary laboratory for microscopic examination. I introduced this system as early as 1905 and for over 30 years I examined myself some 2,000 to 4,000 preparations a year and, I believe, thus assisted not only the Chief Veterinary Surgeon in his control measures but the veterinarian in the field, whose treatment was largely based upon the laboratory diagnosis. I would also, *en passant*, refer to the fact that after the Boer War glanders was very prevalent and was only eliminated by the systematic use of mallein, while all cattle imported into the country were tested with tuberculin for tuberculosis, from which our cattle were free. These, of course, were laboratory products which would have remained as such had not the practitioner found the value of their application.

I feel I must apologise for this somewhat lengthy and egoistic review of the veterinary history of Rhodesia, but I have put it forward to support my contention that veterinary research may be of assistance to the veterinary administrator in his efforts to control diseases, and the practitioner in his attempts to cure them.

But I wish to go a little further. Here in Great Britain I find our flocks and herds are so infested with diseases that the pastoral industry—the premier industry in this country—is in danger of extinction. Some of these diseases are well understood and can be controlled, but others are not. For example, much remains to be known concerning contagious abortion, Johne's disease, tuberculosis, mastitis and foot-and-mouth disease before they can be controlled or eliminated. This knowledge can only be acquired as the result of intensive research. True, the Government has at last created a State Veterinary Service, but in many cases their measures of control must be purely empirical. One would like to have seen far more attention and support given to veterinary research with a view to acquiring that fundamental knowledge which is necessary before diseases can be effectively dealt with.

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Major Hamilton Kirk asked if he had understood Mr. Bevan correctly when he said there was no known remedy or preventive for rabies. He knew that in America, as with other countries, dogs were inoculated quite satisfactorily against this disease.

(*Continued at foot of column* 1, *page* 530)

A Few Observations on Bovine Pasteurellosis*

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I must first of all thank those of you who are members of this Division of the N.V.M.A. for the honour you have conferred on me in asking me to attend this meeting in order to give some of my views with regard to pasteurellosis as affecting cattle. At the outset I would say that I intend to adhere strictly to the wording in the agenda, *i.e.*, to make a few observations rather than attempt anything like a comprehensive treatise on the subject. One object in doing this is in the hope that it may be the basis of a general discussion on this pathological condition about which there seem to be so many varied opinions. In any case this must of necessity be rather a disjointed effort owing to my lack of time as a general practitioner. It was, I believe, the article by Mr. C. R. Holmes and myself that appeared in the *Veterinary Record* of August 6th, 1938, which was primarily responsible for my invitation here, though I should like to take this opportunity of saying that, for various reasons into which I need not now enter, that article failed to bring out some of the points which I most wanted to stress.

To my mind bovine pasteurellosis is a definite entity which shows itself in a wide range of conditions and in a wide range of degrees of intensity. It has been and I think can be, associated with many of the so-called cases of transit or shipping fever which we all know may, in themselves, be mild conditions where nothing much more than a malaise with slight temporary fever, occasional cough and temporary precarious appetite, is shown. These slight cases, if comfortably housed and offered good food, usually recover without medicinal treatment. On the other hand, cases may be so severe as to assume a haemorrhagic septicaemic nature. As far as transit or shipping fever is concerned one can understand the different degrees of intensity by giving consideration to the conditions under which the animals have been kept, the amount of exposure and fatigue to which they have been subjected being great factors regulating the defensive powers of the body against attack from potentially pathogenic organisms. When, however, one comes to similar conditions in animals in first-class bodily condition and the said animals have been bred and reared on the same premises on which they are attacked and, moreover, when the weather is good, one is up against a more difficult problem. The explanation may be that the genus *Pasteurella* is a very large one comprising types of varying virulence even for a given species as well as types of no, or only potential, pathogenic significance. The fact that each species of animal has a definite *Pasteurella* pathologically associated with it does not exclude the possibility of there being many others, some being intercommunicable.

For the bacterial aspect of bovine pasteurellosis I would refer you to page 1007 of the *Veterinary Record* of August 6th, 1937, being part of an article by Mr. J. F. Shirlaw, M.R.C.V.S. May I at the same time recommend that you peruse the rest of that article.

Before leaving the bacterial aspect I would mention that in Hutyra and Marek, Fourth Edition, edited by Dr. Russell Greig, it is said that, although *Pasteurella bovis* is not very resistant to abnormal temperatures and disinfectants, it is able to live and multiply in spring water containing much organic matter. This fits in very well with the big outbreak of September 12th, 1937, to which I referred in the *Veterinary Record* of August 6th, 1938. Those who read that article will remember that we were inclined to blame a so-called covered straw yard, in very bad hygienic condition, as being the focus of infection. The actual floor of most parts of this yard was

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Major Farrant said that he had had considerable experience of mal de caderas when he resided in Demerara, and he wondered if Mr. Bevan knew of any specific treatment for this disease.

Mr. Bevan thanked the members for the way in which they had listened to his address and said what a pleasure it was to be amongst such appreciative people.

In reply to Major Hamilton Kirk, he had hastened somewhat over the paragraph about rabies, but what he meant was that, at that time (early in the century) there was no method known whereby animals could be protected.

With regard to mal de caderas, he had not had a great deal of experience with that disease, but as with sleeping sickness of human beings, he had tried salvarsan; as the result of many experiments, however, it had been found that arsenic preparations were not entirely satisfactory, because there was a tendency for the animal to relapse, and, therefore, nowadays one tried Bayer 205. Not only did Bayer 205 and similar products effect a cure, but if properly applied they rendered the animal immune to subsequent infection. To his mind, the only way of dealing with these infections was by prophylaxis. Animals were frequently moved before it was realised that the infection had been carried with them, and the only way of dealing with those diseases was by rendering animals and man immune against them.

simply a quagmire of excrement in spite of an abundance of clean straw as litter.

Now when I learn about this faculty of the *Pasteurella bovis* I am wondering whether this yard alone was culpable for the outbreak, because the disease spread to cattle other than those which at sometime or other had been in this yard. The fact that the majority of the grazing ground on this estate is of a low-lying marshy nature, intersected by several running and semi-stagnant streams, may have its significance. Significance is added to this point by the fact that Hutyra and Marek, Fourth Edition, suggest that pasteurellosis is a disease "typical" of the soil.

Your secretary has asked me to say something in particular about differential diagnosis. There can be no doubt in those acute cases in which one gets a sudden onset of the disease followed by death within 72 hours and in which bi-polar organisms can be discovered in almost pure cultures in smears from the actual lung tissue and from almost any other tissue including bone marrow. Also in cases where death has not occurred so suddenly and in which *post-mortem* examination reveals that marbled condition of the lungs which simulates pleuro-pneumonia in cattle, one need not get agitated (as I once did) if one can demonstrate vast numbers of bi-polar organisms from material from these lungs, but can come to a definite diagnosis of pasteurellosis.

I must say that I have never seen the *ante-mortem* pharyngeal and tongue lesions referred to by many authors, although one case in a heifer showed marked distressed oral breathing with protrusion of the tongue and salivation. She died and revealed *post-mortem* evidence of the typical lesions which I have tried to describe.

The disease with which pasteurellosis might be most readily confused is husk or bronchial strongylosis. Here the history plays an important part. One enquires how the animals have been housed or whether they have been grazed on pastures where periodic attacks of husk occur in young animals. Husk is a comparatively slowly progressive disease and in adult animals one very rarely gets a systemic disturbance. Pasteurellosis, on the other hand, attacks not only young animals but those from two to four years old, and in this disease temperature variations occur between the limits of 103 to 108° F. Auscultation is of value and for this purpose I find the use of a stethoscope modelled on the lines of a phonendoscope very useful. In husk one does not expect to detect the definite large dull areas of lung tissue found in pasteurellosis and although the respiration may be accelerated, and râles, as distinct from pleural crepitus, may be heard, these, in husk, are due chiefly to mucus in the bronchial tubes and bronchioles and not to an intimate invasion of the actual lung tissue. Again, in husk one does not usually get the uncomfortable posture accompanied by a sort of stiffness of the fore quarters and neck, nor the local patchy perspiration found in pasteurellosis. I would almost venture to say also that husk invariably quickly lends itself to remedial treatment by intratracheal injections whereas I can conceive that an intratracheal injection given to an animal affected by the disease under question would do considerably more harm than good. If still in doubt about the differentiation between these two conditions one could always have an examination of the faeces of the affected animals for the presence of the eggs of the bronchial parasites. If this examination proves negative one can, I think, with confidence assume that the condition is not one of strongylosis.

Another condition with which, in my opinion, bovine pasteurellosis could be confounded in cattle running out to grass, is vegetable poisoning, particularly poisoning by the celery-leafed buttercup (*Ranunculus celeratus*) which is a plant associated with low-lying ditches and streams. Poisoning from this very toxic plant causes generalised petechial small haemorrhages throughout practically the whole system. One should, however, be able to eliminate this plant as being culpable unless one can find evidence of its existence and, more important still, of its having been eaten. I was not able to find evidence of this kind in the big outbreak to which this and my previous report referred.

In order to complete this discourse there are a few remarks which I should like hurriedly to make and which I am sorry to say will be rather disjointed. I have recently had what, to my mind, was a typical case of sub-acute bovine pasteurellosis in a yearling steer, one of a bunch that had recently come down from the north. The day after their arrival all the cattle in this bunch were coughing in a husk-like way but one steer in particular ran a very high temperature, went completely off its food and had a tendency to perspire. On about the third day it developed rather a copious catarrhal nasal discharge. I took a swab and made smears of this discharge, and had very little difficulty in finding very numerous bi-polar organisms. I sent two slides to the Moredun Institute. These were examined by Dr. Holman who confirmed the presence of pasteurella organisms on them. This steer received the treatment to which I will refer briefly and after a course of ten to 14 days with a temperature fluctuating from 103 to 106° F. and a most precarious appetite, made what was apparently a quick recovery.

As far as treatment is concerned, coupled with good nursing and general consideration to the animal's comfort, I cannot speak too highly of the use of a combined haemorrhagic septicaemia bacterin supplied by Messrs. Parke, Davis & Co. This is given subcutaneously in doses of 5 c.c. To my mind, as a prophylactic one dose of this product is of the very highest value. Moreover, as a curative, even in very acute cases, if given in repeated doses at intervals of three to four days it has a very marked beneficial effect. I remember a young heifer in the original big outbreak of September, 1937, which, when Mr. Lyle Stewart, M.R.C.V.S., of the Agricultural Department, King's College, Newcastle-on-Tyne, and myself were taking blood from its jugular vein for examination, was so weak that it simply fell down exhausted during the process. This heifer, after possibly four or five doses of the bacterin, and good nursing, made an apparently good recovery and has since produced quite a good calf. I feel certain that had it not been for the bacterin the owner of this big herd of cattle would have sustained a very large financial loss. I say this because, before the administration of this bacterin, while the case was yet in the hands of an unqualified practitioner, he was losing cattle at the rate of at least one or two a day.

Dr. Hare, M.R.C.V.S., in collaboration with Mr. J. R. Barker, M.R.C.V.S., of Hereford, produces a preventive vaccine which incorporates *Pasteurella boviseptica* and what he calls the "haemolytic streptococcus of pneumonia." Curative properties are also claimed for this. I have not yet tried this product but the combination of these organisms seems a very sound proposition to me.

I must thank Dr. J. Russell Greig, Dr. Tom Hare, Mr. Lyle Stewart, Mr. J. R. Barker and Mr. C. R. Holmes for the part they have taken in enabling me to make this contribution to the advancement of cattle practice.

. . . . . .

Major Farrant said he would like to ask Mr. Turner how many injections he gave, and what quantity of the bacterin was given.

He had seen three outbreaks of the disease, and he had been particularly impressed with the fact that when the animal coughed the cough was not like the cough of husk or hoose. The abdominal muscles were brought so much into play that the animal looked as if it were going to "retch itself to death."

He quite agreed with Mr. Turner's statements *re* marbled lungs. It was obvious in some cases that the bacterin was taking hold of the trouble, but the lungs were full of fibrous tissue.

Did the cough increase when the animals were turned out into the cold air?

Dr. Blount addressed the following enquiries to Mr. Turner:—

(1) Had he used the agglutination test as an aid to diagnosis?

(2) Had he noted any cardiac lesions, in appearance rather like tuberculous pericarditis, with associated petechiae?

(3) Did he believe that husk attacked older cattle, or, when such symptoms occurred in these animals, was this usually a form of pasteurellosis?

(4) Had he noted in some of his cases that lung worms were present in addition to the pasteurellosis?

(5) Did he consider that a braxy-like lesion of the abomasum was a feature of some cases of pasteurellosis?

Mr. Turner, replying to the points raised, said, in answer to Major Farrant's questions, that as a curative he started off with 5 c.c., irrespective of the size or age of the animal; and according to the progress of the disease, at intervals of three to four days, he gave three or four, or even five, doses, but never more than five.

He quite agreed with Major Farrant that in the advanced stages, the cough of bovine pasteurellosis was not like a husk cough, owing to the soreness of the pleura "chest wall." When he stated that the cough resembled that of husk, he meant before the disease had really got a hold. There was quite a time before one suddenly got a crisis, and it was during that period the cough was very similar to that of husk.

He could not say that he had noticed the cough increasing when the animals were turned out.

In reply to Dr. Blount's questions:—

(1) He had never made use of the agglutination test.

(2) He had noticed the adhesions of the pericardium, but had never taken actual specimens from these lesions.

(3) While he did not think that husk, as such, did occur in older cattle, he did think that cattle over four years' old could act as hosts to a certain number of strongyles, as he had on several occasions seen these worms in the bronchial tubes of quite elderly animals.

(4) He had failed absolutely to find adult worm eggs or larvae. The Ministry of Agriculture's laboratory also failed to find any in specimens he had submitted to them.

(5) He had noted in some instances that there was an inflammation of the fourth stomach.

SEVENTH WORLD'S POULTRY CONGRESS

Nearly half-a-million persons are engaged in Great Britain's poultry industry, the value of its annual output being about £34,500,000. It is satisfactory to know, therefore, that arrangements are being made to ensure adequate official representation of the industry at the Seventh World's Poultry Congress, which is to be held at Cleveland, Ohio, U.S.A., from July 28th to August 7th next.

A committee, appointed by the National Poultry Council and the National Farmers' Union, is arranging to send specimens of world-famous native breeds of poultry, as well as birds of breeds that have originated in other countries but have been greatly improved here. It is also hoped to stage a comprehensive educational exhibit.

Sixty countries have agreed to take part in the Congress and national exhibits are being provided by at least twelve of them, while 21 are participating in the International Live Bird exhibit.

TUBERCULIN TESTING: SOME NOTES ON THE IDENTIFICATION OF CATTLE

R. H. SMYTHE, M.R.C.V.S.,

Camborne, Cornwall

It is now an everyday occurrence for the veterinary surgeon to be called upon to describe, in a certificate, one or more bovine animals, in such terms that a person of normal intelligence should be able to recognise the animals definitely from such a description. The object of rendering accurate identification possible is to avoid substitution, either *during* the conduct of a tuberculin test or *after its completion.*

When such a test concerns a large batch of cattle, fresh animals may be substituted by a dishonest dealer for those which have reacted between the first and second injections. Then, when the animal substituted resembles nearly the one removed (as usually is the case), a certificate will be received by the dealer, should the substitute pass the test, which he may use to cover the reactor. Furthermore, the non-reactor will be a safe animal to include in the next batch to be tested.

Again, if a number of animals are to be tested for purposes of auction, the dealer, upon receiving the certificates, may dispose of several animals, thereby retaining a batch of certificates which he may attach to a corresponding number of untested or reacting cattle, answering more or less to the same descriptions. In whole-coloured cattle this is a very simple matter, and in such breeds as Guernseys and Friesians when blank maps are used as part of, or attached to, the certificates, it may be found that a proportion of the animals described thereon have few white patches marked in. It is quite easy for a dealer to add such extra marks as may correspond with those on the animals of which he wishes to dispose. To lessen this risk, one may fill in the maps, using ink of an unusual shade or chemical reaction, which it will be difficult to imitate.

Neither ordinary ear-marking nor horn-marking can be depended upon to overcome fraudulent practice. Fresh marks can be inserted; existing marks can be added to or otherwise varied. Here again, in the case of ear-marking, tattooing inks, possessing special or unique characteristics, may be employed in place of the usual inks and, as examples, one may consider aluminium or bronze paints, which are particularly useful in dark-skinned cattle and render forgery more difficult.

In its median, hairless region, the perineum is especially adapted to tattooing and the marks (applied with a special set of instruments) are easy to read and more difficult to tamper with successfully.

In a written certificate, one should make use of any special distinguishing features present, such as the following:—

Star, presence or absence of, and when present, its size and shape; broken, odd or irregular horns, upright or down-turned (usually loose); snips and perforations in ears; colour of nose, permanent abnormalities such as hygromata, upturned or overlapping claws; overgrown feet; pin down, old costal fractures; umbilical enlargements; breaks or kinks in the tail, deflection of the tail to either side, leaving the vulva exposed; vulval tears; abnormal quarters; defective or supernumerary teats; permanent scars. The dealer will scarcely appreciate attention being drawn to defects nor their use as distinguishing marks.

When testing a large batch of cattle, it is not always easy to detect substitution between the first and second injections. Ear-marking can seldom be practised prior to the first injection, and even when permissible it is seldom easy to read the ear-marks, so soon after their insertion, without a deal of undesirable cleansing and a great deal of handling.

To overcome substitution, both during and after the test, the writer has adopted the following practice: At the *commencement* of the test, a numbered tin disc, such as is used for the identification of dog-show exhibits, is threaded through its perforation with thick cord, binder twine or insulated aerial wire. The cord is then knotted, so as to prevent the disc slipping about. It is applied around the base of both horns. The ends of the cords are passed (preferably twice) through a perforated lead seal, such as is used for sealing milk cans, and knotted together. The lead seal is then closed with a special sealing pliers, which impresses a registered (or some uncommon) design upon the lead. In the live animal, it is practically impossible to remove such a seal without mutilation.

In addition to a map, description and particulars of ear-marks, the certificate given states that the animal carries, around the horns, a sealed cord, bearing a numbered disc. The purchaser is warned that the certificate must be accepted as a proof of testing, only when the seal and cord are intact.

In the case of polled cattle, the cord is attached around the neck, close to the head, and the certificate is worded accordingly.

FURTHER OBSERVATIONS ON THE TECHNIQUE OF TUBERCULIN TESTING IN THE FIELD

W. D. BLANCHARD, M.R.C.V.S.,
LEOMINSTER

I have received various communications in response to my article on the technique of testing, and one which pleased me very much was from a reader who had tried my method of securing the animals on a herd of 150 and who told me he had done them in record time and that only three or four had to be "nosed." Others, I am sorry to say, did not find my instructions clear. Without a series of good photos I cannot see how to make the matter clearer, but I wish to thank all who were interested enough to communicate with me; this has encouraged me to add to the original article, and I will give the results of a few simple experiments made to satisfy my curiosity and to try and find some answers to the question, why do we find reactors on a retest? Did the animal ever get the dose? Was the second dose given in another site? Were the doses so placed as to take full effect?

Now, we have been advised to deposit the dose in the deeper layers of the skin, and told that the perfect injection can be felt like a split pea under the epidermis. I obtained various pieces of skin, including some from the usual site, some from a heifer's udder, a bull's neck and a bull's caudal fold. I used a dental syringe and the smallest needle that goes with it, and in order to trace the dose I used rectified spirits coloured with methylene blue. Making the advised perfect injection, I turned over the skin to see if the blue had come through. It had not, so I rubbed the spot and the blue became evident; but I also found that the pressure of the finger would force the dose out through the needle puncture. Making another injection I tried stretching the skin only and found some would exude by this means alone. I found further that if the injection was reasonably close to the edge of the piece of skin the fluid would exude between the layers of the skin. Following this up by injecting and cutting sections, it was found that fluid had penetrated quite a distance in one direction only. During this experiment I noted that the dose had entered a small vein which was distended and could be seen in the connective tissue for about two inches. I next coloured liquid paraffin with meth. blue and spirit. This fluid was of such viscosity that it was with difficulty drawn into the syringe. Injecting this and making a section through the site showed the parts as distinct as a kernel in a nut. Incidentally, I read in the *Veterinary Record* that tuberculin can be obtained in powder form. If such is the case, and it is desirable for the tuberculin to be confined to one spot, this method would do it.

Are some doses wasted, I am quite aware that the animal cannot put a finger and press out the dose, but the processes of the cervical vertebrae are very prominent and the tie or yoke presses on the neck, or, if free, the animals rub the neck. How many necks does one find in which it is difficult to find a site due to lice or ringworm, and with bare patches everywhere, and, in any case, an animal can and does stretch the skin of its neck.

The dose entering the vein was, I take it, exceptional, but it occurred.

To forestall criticism, I am aware that it was dead skin I used, and the condition in the living may be quite different. I hope soon one better qualified for research will take this up.

I next experimented on the thickness of the skin. Dissection showed me it was very difficult to find where the connective tissue ended and the skin began; I contented myself, therefore, with experimenting on the skin as the butcher left it. For example, in the bull's caudal fold strands of tendinous tissue make a network and the epidermis is exceedingly tough, yet I have seen a reaction as big as a ripe gooseberry hanging from this site. Regarding the thickness, taking a piece of skin from the neck and folding it, it measured 10 mm. Spreading out the same piece and measuring it with the calipers pressed firmly, it was only 3 mm. Yet I found that unless it was placed on a firm base such as a piece of soap, a 6 mm. needle would not go right through. The dose would be left in the connective tissue. Knowing what happens in practice with the varying thickness and also the position the skin assumes, I wondered if the ideal split pea injection occurred with such regularity as we try for.

Finally, I gave myself the choice of two evils—of endeavouring to place the dose where it could be felt, where it might be in danger of being lost to the animal, or, making sure the animal got it, being too deep to be effective.

I decided to experiment and, asking the owner's permission, I tested ten cows that I had rejected last November. Taking the syringe described below with needle set to a depth of 6 mm., I injected each dose with a stab to the full depth of the needle and kept the cork pressed tight to the skin until all the dose was given. You will note that only one of the animals measured over 8 mm. on the fold. This, on my experiments, represented under 3 mm. actual skin to penetrate. R.V.C. Batch 65 tuberculin was used, 0·1 c.c. dose. I have referred earlier to the state of the skin found at this period of the year, that is, often rubbed with numerous bald patches. My method is as follows: After clipping I take the stopper of a bottle of methylene blue and press it firmly on

the site selected. This marks it indelibly and you have no difficulty in putting the second dose after the first. This tip saves a lot of trouble.

No.	Description.	Age. Years.	Measurements. November, 1938.	Measurements. March, 1939. Re-tests.
1	Roan cow. 6 right horn	10	8 10 14	8 12 18
2	Roan cow	10	8 12 16	8 11 22
3	Black and white cow	5	9 16 16	8 20 28
4	Black and white cow	10	8 12 20	8 24 28
5	Black and white cow. 2 on horn... ...	11	8 14 30	7 30
6	Black and white cow. 1 on horn ...	6	8 13 20	8 40
7	Roan cow. Mastitis	12	8 14 16	8 11 18
21	Red Shorthorn cow	5	8 15 20	8 11 28
49	Blue heifer... ...	2	8 11 18	8 12 21
28	Red and white Shorthorn cow ...	6	8 16 25	8 25 32

In Nos. 5 and 6 the swelling at the 72nd hour was too big to measure with the caliper.

Dairy owners have told me that their milk yield was down a lot when testing. As these have usually been herds with a lot of reactors, I thought it might be due to constitutional disturbance and not to the handling, so I took the temperature of these cows as a test, but there was no rise of temperature. In my previous article I had described how I had found it an advantage to have a disc on the syringe to prevent the needle going too deep, to help direction and to enable one to know when the aperture of the needle was uppermost, but before that article was in print, I had effected a great improvement on the lead disc then depicted, and that was by fitting a brass ferrule on the syringe with a cork end through which the needle projects. One further point worth noting is that with the usual type of dental syringe it is not easy to insert the needle without putting pressure on the piston. This means the dose is escaping from the start. With a 10 c.c. syringe you can hold it to insert the needle without touching the piston. Occasionally I rest the edge of the cork on the skin and use it as a fulcrum. I am wondering if the pressure of the cork distributes the tuberculin through the layers of the skin. I believe it does.

To sum up—and diminish the violence of the criticism I expect—I have already admitted that the skin was not that of the living, the fluid not tuberculin and the measurements were taken with the ordinary calipers, but it is open to every practitioner to try the same experiments for himself, and although ten is not a big number to base an opinion on, the result was a relief to me as I am sure I have never put doses deeper in my ordinary work. Readers will please note that I am claiming no credit for the greatly intensified reaction which occurred in the experimental retest made with the object of finding out if it was possible to go too deep with this syringe and by so doing render the test unreliable.

CLINICAL COMMUNICATIONS

Illness of Pigs Due to a Food Deficiency

(Possibly One Factor of the Vitamin B_2 Complex)*

J. PICKUP, M.R.C.V.S.,
Barnet

On November 11th last, eight pigs were purchased by a local farmer: they were then seven weeks old. They were fed upon middlings, bran, and a small quantity of swill, and appeared to thrive upon this diet.

On December 9th last, the same farmer purchased six further pigs at a farm sale, and at the same time and place he acquired a quantity of Messrs. "X's" pig meal. The six pigs, which were then 18 weeks of age, had been fed upon this meal and were in good condition.

A fortnight after his second purchase, the farmer placed the first and younger lot of pigs upon the "X's" pig meal. Within ten or twelve days, two of the pigs fell ill, and after another fortnight, all of them were affected. It should be noted that the second and older lot of pigs, which were still feeding upon the "X's" meal, continued healthy throughout.

I was not called in by the owner until all of the younger pigs had fallen ill, *i.e.*, at the beginning of January, but the following history was elicited:—

The animals had been very dull and only "half-feeding." The most striking symptom noticed was at feeding-time, when the animals would rush up towards the trough in a normal manner, but before reaching it would fall over in a fit. Recovery took place in from five to ten minutes, and the pigs would then go up to the trough and commence to feed. There were rather marked respiratory symptoms, and the owner had suspected "pneumonia."

When I saw them, the pigs were listless and for a time showed variable appetites. There was no temperature and no diarrhoea, and,

*An annotation on the subject of vitamin B deficiency in pigs is published later in this issue.—*Editor.*

rather surprisingly, there did not appear to have been any marked loss in weight. Respirations were increased, and breathing stertorous. The animals had a staggering gait, and had a tendency to push their snouts up against the wall of the sty. They had also a habit of grinding their teeth, and at times looked very dazed. It certainly seemed as if the central nervous system was affected. I was not sufficiently fortunate to witness a fit in progress, and although I subsequently watched the pigs feed upon numerous occasions, the diet had by then been changed and no further fits recorded. There is, however, no reason to doubt that they occurred, and in any event, the nervous symptoms were otherwise well marked.

In view of the dietary history, it was recommended that the pigs be starved for 24 hours and then placed upon a different ration. The farmer chose to use a well-known pig rearing meal, Messrs. "Y's," and all the affected pigs were accordingly placed upon this. Within two days there was a slight but definite improvement, and no further fits had been observed. Within four days all the symptoms had disappeared except the lassitude, and the pigs soon appeared normal. From that time they have all done very well indeed, and have, in my opinion, made a perfect recovery. I have seen them as recently as the beginning of March.

An effort was made to determine whether there might be any deleterious or toxic substance present in the meal manufactured by Messrs. "X." Samples were taken for chemical analysis and the relevant extract from the analyst's report reads as follows:—

> ". . . the material is free from deleterious ingredients and is suitable feeding stuff for pigs."

It would certainly appear that the first commercial pig meal used was deficient in one or more dietary essentials, which were remedied by feeding the other product. Although the second lot of pigs never appeared in any way abnormal, they were older and presumably better able to withstand a deficient diet. The occurrence of nervous symptoms, including true epileptic fits, has recently been recorded in experimental pigs from which certain factors of the vitamin B_2 complex have been withheld.[1] While it is, of course, impossible without biological examination of the suspected meal to determine in what way it was deficient, these case notes are put on record in the hope that they may focus attention upon another possible "deficiency disease" in this species.

[1] Chick, H., Macrae, T. F., Martin, A. J. P., and Martin, C. J. (1938.) *Biochem. J.* 32. 2207-2224. "The water-soluble B-vitamins other than aneurin (vitamin B_1), riboflavin and nicotinic acid required by the pig."

Extra-abdominal Foetation

W. B. BROWNIE, M.R.C.V.S.,
Wolverhampton

This case report arises from my examination of a side of a dressed carcase of a cow. It was thought that the cow had been injured in transit as she was bulging so much on the left side. She was a month off calving, was perfectly normal in health, and walked without difficulty.

Fig. 1.—Parietal surface of carcase showing cavity from which twin calves removed. Notice outward bend of last ribs.

Fig. 2.—Visceral surface of carcase showing intact peritoneum which is bulging inwards.

On examination of the dressed carcase a large cavity was found on the flank. The butcher informed me that twin calves had been removed from the cavity. At first it appeared that there had been a ventral hernia, but on questioning the butcher he said that when he was skinning the carcase twin calves' heads fell out of the cavity. On examining the peritoneum it was found to be intact. The calves were lodged in a cavity between the skin and abdominal tunic. A curious feature is that the last two ribs had been bent outwards to an extraordinary extent by the growth of the two foetuses.

In some way the uterus must have got through the inguinal canal, or perhaps been a congenital deformity, and there the fertilised ovum grew.

* * * * *

Nasal Haemorrhage in the Dog

W. B. BROWNIE, M.R.C.V.S.,
WOLVERHAMPTON

Subject and History.—On December 25th, 1937, a smooth-haired fox terrier dog was brought into the surgery suffering from intermittent nasal harmorrhage. Occasionally it would sneeze and drops of mucus and blood would be emitted from the left nostril. The owner said that this haemorrhage started quite suddenly.

Symptoms.—The animal was found to be rather dull and unwilling to eat its usual meals. Temperature was normal. Nasal discharge and haemorrhage occurred after sneezing, but the latter was not persistent.

Diagnosis.—It was thought that the dog might have ulceration of the nasal mucous membrane due to a previous infection of distemper. An ulcerated polypus, and the Pentostome were also considered as possible causes of the trouble. The owner was unwilling to have the dog X-rayed. Owing to the difficulty of diagnosis it was decided to keep the dog under observation.

The dog did not improve with treatment and so it was destroyed on December 28th.

Post-mortem Examination.—This revealed a spicule of bone lodged in the common meatus. It had made a pocket for itself in the mucous membrane. The spicule was $\frac{1}{4}$ in. long by 2 mm. wide. Judging by its colour and erosion and the size of the pocket it had made for itself, it would appear to have been there some time.

In my opinion the spicule must have been forced through the pharyngeal mucous membrane in the act of sneezing while the dog was chewing a piece of bone. There was neither callus in the nasal bone nor scar of the skin to indicate a previous fracture, and there was no history of there having been an accident. A bone was, however, removed from the dog's pharynx in June, 1936.

* * * * *

Paralysis in the Dog

W. B. BROWNIE, M.R.C.V.S.,
WOLVERHAMPTON

Subject.—Rough-haired fox terrier bitch. Age six years. Had had one litter of pups.

History.—As the owner had to go away from home, the bitch was left at boarding kennels. At the kennels the bitch became constipated and soon showed signs of paralysis.

Symptoms.—She was found to be in good condition but totally paralysed. On lifting, and placing her on her feet, she simply collapsed limply. Her temperature was normal. She refused food. There was neither vomiting nor cough, nor any history of distemper.

Treatment.—On giving her an enema she was found to be very constipated, her faeces being black and evil smelling. She received a soap and water enema for three consecutive days, and then every second day until she could defaecate without aid. Her bladder was emptied daily by compression. For the first few days she was fed forcibly three or four times daily with glucose and milk ; 20 c.c. calcium borogluconate solution in 80 c.c. normal saline was injected subcutaneously, and 5 c.c. of 10 per cent. magnesium sulphate solution intramuscularly. A trace of copper was given orally. She also received a ferri carb. and strychnine tablet (Parke, Davis prescription) night and morning.

From the third day after the bitch was examined to about the tenth day, she received electrical treatment to the sacral region every alternate day.

Gradually she showed signs of improvement. Soon she began to take food if it was held near her head, and in four or five days she could move her legs a little. About the ninth day she was able to turn over unaided. Eventually after two weeks' treatment a complete recovery was made.

The same treatment was applied to a mongrel terrier dog with posterior paralysis, and it recovered in about the same period of treatment.

BOAR LICENSING SCHEME

General agreement on the principles of a boar licensing scheme was reached at a conference recently held at the Ministry of Agriculture, attended by representatives of pig societies and other agricultural bodies.

It was agreed that a system of boar licensing, with proper safeguards, on the lines of the bull licensing scheme which has now been in operation in England and Wales for nearly five years, would bring about a widespread improvement in the general standard of pigs, whether bred for pacon or for pork, thus benefiting all sections of the industry, as well as the consuming public.

The Veterinary Record

April 29th, 1939.

Research and its Value to the Practitioner

EFFECTIVE collaboration between the veterinary practitioner and the veterinary research worker is eminently desirable. Such collaboration can only be maintained provided the practitioner is in a position to apprehend the results obtained by the research worker and provided the investigation produces at least some results that can be applied with reasonable confidence in the field.

For the active prosecution of the group of sciences which together we call veterinary science, there must be adequate numbers of properly trained research workers in these various individual sciences, working at veterinary and allied institutions. The work they perform should be of two types—fundamental and applied—each of which is vital to professional progress

The importance of fundamental research may seem to be almost negligible to the practical man, but all far-seeing veterinarians will realise that applied research and field application of research will only continue to progress provided the fundamental work is also being actively pursued. If we were to criticise the research work being done at present by veterinarians in this country with the support of the Agricultural Research Council we should say that it includes far too little work of a fundamental character. That fundamental research may quickly lead to the development of far-reaching improvements in practice is well illustrated by the immense advances recently made in the practice of food preservation as a result of the co-ordinated fundamental and applied research undertaken by the Food Investigation Board.

But to the practitioner applied research will be more immediate in its appeal. The practitioner is ever ready to adopt new and well-tried methods of preventing or curing disease. He must retain a wide, appreciative outlook so that he may assess the value of research applied to problems of nutrition, breeding, pathology, bacteriology and immunology, parasitology, veterinary medicine and veterinary surgery. Naturally he must rely to a considerable extent upon the research worker for the reliability and thoroughness of the work done. The investigator must take particular care that his experiments concerned with animals are properly controlled and must be arranged so that sound statistical deductions can be made. Never should conclusions be overstated. A practitioner would instinctively distrust a report affirming that some biological test or treatment made upon animals was 100 per cent. efficient: he would recall the fact that with living animals such results are extremely rare. A biological test that is 90 per cent. accurate must be considered to be a highly satisfactory one. Practitioners and research workers alike should beware of claiming too great an efficiency for any diagnostic test or method of immunisation or cure; such claims will inevitably recoil upon the heads of those who make them.

The discerning practitioner helps the investigator by trying out his methods in the field and carefully noting the results, but he can also indicate not infrequently possible lines of new and further investigation. In this way mutual assistance is rendered.

Fundamentally the research worker and the clinician employ methods which are very dissimilar, and it is for this reason that misunderstanding so often arises between them. The very nature of the work which the practitioner must perform necessitates a rapid examination of apposite circumstances, the immediate assessment of the facts, and the early adoption of practicable measures to meet the particular case under investigation. The research worker, on the other hand, must carefully collect, collate and assess all the facts relevant to his particular problem either obtained by him or other workers. He must then carefully consider the lines which his experimental enquiry must take, paying due heed, so far as he can, to every possibility. He must endeavour to ensure conditions so that the effects of influences other than the one he is examining are properly controlled. This naturally leads to slow progress, frequent repetition, and much thought.

It is obvious, then, that temperament and methods so different must need careful nurturing to make them work together satisfactorily. A paper such as that read by Mr. Bevan before the Sussex Veterinary Society, and printed in this issue, should help to maintain this spirit of understanding.

ANNOTATION

Vitamin B_2 Deficiency in the Pig

Vitamin B consists of water-soluble dietary essentials, all of which are present in yeast, and may be divided into a single relatively heat-labile factor (vitamin B_1, aneurin), essential for the pig as well as for other species, and a number of relatively heat-stable factors which comprise the "vitamin-B_2 complex." The exact number of components of this complex has yet to be determined; certain of them have been identified chemically and others are recognised only by their biological effect. The following are the more well-defined essential nutrients of the vitamin-B_2 complex; the first three have been isolated in a pure state:—

(1) *Riboflavin* (lactoflavin) is perhaps the most important of the vitamin B_2 factors, and has been shown to be required for the nutrition of man, rat, dog, chicken and turkey poult. It is as yet undecided whether riboflavin is an essential nutrient of the pig.

(2) *Nicotinic acid* is curative of blacktongue in dogs, and of analogous diseases produced experimentally in monkeys and pigs, and has recently proved of great therapeutic value in human pellagra.

(3) *Vitamin* B_6 (eluate factor, factor 1, adermin) is required by the rat, the dog and the pig. Deficiency of this factor causes a dermatitis in rats, a microcytic anaemia in dogs and pigs, and epilepsy in pigs.

(4) *Filtrate factor* is contained in the filtrate obtained by treatment of extracts of yeast, liver or rice polishings with fuller's earth. This factor is required for growth of rats, prevention of paralysis of pigs, prevention of dermatitis of chicks and prevention of a macrocytic anaemia of monkeys. It is not certain, however, that the dietary essentials required by these various animals are identical.

It is recognised that there are other essential nutrients of the vitamin-B complex, since vitamin B_1 and these four factors of the vitamin-B_2 complex collectively are unable to replace brewers' yeast in the nutrition of the pig and the rat.

In work which has recently been published jointly from the Lister Institute of Preventive Medicine, London, and the Institute of Animal Pathology, Cambridge, the vitamin B_2 requirements of the pig have been studied, and the effects of deprivation of certain of the above-mentioned factors described. The following is a brief summary of certain of the findings, with special reference to the clinical and pathological aspects. (Birch *et al.* 1937; Chick *et al.* 1938a, 1938b and 1938c.)

Experiments with Pigs on a Pellagra-producing Diet: Nicotinic Acid Deficiency

In one experiment, four young weanling pigs were placed upon a diet consisting of:—

Whole ground white maize	83
Pea meal	11
Purified casein	4·4
Cod-liver oil	3
Salt mixture ($CaCO_3$ 2 parts, bone ash 2, NaCl 1 and Fe_2O_3 0·08) ...	2·5

This diet is similar to those which have been employed in the production of canine blacktongue and which are modelled upon the diets associated with human pellagra. It contains 10·8 per cent. protein and has a nutritive ratio of 1 : 6·5. The pigs put on weight at a subnormal rate for from five to six weeks, the average weekly gain being only 3½ lb. Three of them then developed diarrhoea, their appetites failed, and growth was checked. One of the three died at the end of the seventh week, and the other two became acutely ill and were killed in a moribund condition at the end of the tenth week, having had diarrhoea continuously for three or four weeks and eaten little or no food for a considerable time. The remaining animal also ceased to grow at about the seventh week of the experiment, and later developed diarrhoea. This pig succeeded in maintaining its weight until the thirteenth week, at which time 4 per cent. of yeast was added to the diet, and the animal then increased in body weight by 50 lb. in eight weeks. The yeast was then reduced to 2 per cent., but a further 37 lb. were put on during the following three weeks.

In further experiments, the casein was increased to seven parts, but this did not prevent the appearance of the symptoms observed in the animals receiving the diet containing the smaller proportion of casein.

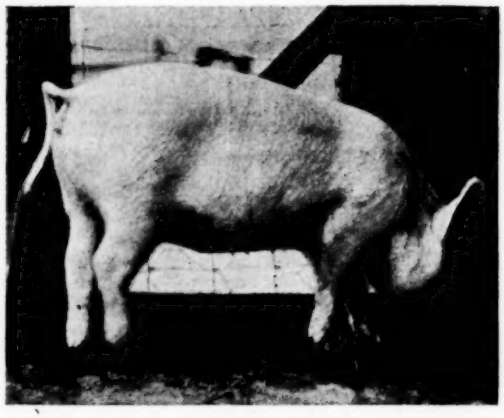
In other experiments, pigs were reared, but not very satisfactorily, on diets of the above type in which the maize was replaced by ground whole wheat 20 parts, and ground whole barley 63 parts, and which contained 5·3 parts of casein. The average weight increase for five to six weeks was 5 lb. weekly, and the animals then developed diarrhoea. Later the animals recovered spontaneously and resumed normal growth.

Although diarrhoea is a common feature of human pellagra, and apparently appears regularly in both dogs and monkeys fed upon a pellagra-producing diet, some concern was caused by its relatively early appearance in the pigs. It was feared that an epizoötic of pig paratyphoid was complicating the experiment and these fears were increased as a

result of *post-mortem* examinations of five pigs which died from the effect of the maize diet. In every case there was a diffuse cellular inflammation of the mucous membrane of the caecum and large colon; these were covered with a fibrinous adherent membrane. "The mucous membrane of the whole of the caecum and upper half of the large intestine was thickened and sodden and the surface covered by an adherent layer of cheesy material about 2 mm. thick. When the animal had died rapidly this layer was stained yellow or green by bile; when life had been prolonged for ten days to a fortnight it was necrosed and of a dirty greenish-grey colour and in parts separated from the deeper layers, leaving large raw surfaces. The serious pathological changes were confined to the large intestine and began at the ileocaecal valve. There was neither stomatitis nor glossitis in any of the pigs, but in one that survived for several months there were a few small ulcers with well-defined margins in the nasopharynx and on the buccal surface of the epiglottis. Similar ulcers in these situations have been described as occurring in pig-paratyphoid. The other organs appeared to be healthy with the exception of the lymphatic glands on the lymph channels draining the inflamed and necrotic mucous membrane of the caecum and colon. These were swollen and intensely congested and sometimes haemorrhagic." Attempts to isolate *Bact. suipestifer*, or indeed any other important pig pathogen, were unavailing. Later experiments fully confirmed the original findings, and it was concluded that the ulceration and necrosis of the large gut were due primarily to the nutritional defect and that bacterial invasion was a secondary phenomenon.

It was later found that the essential nutrient, deficient in this maize diet but contained in yeast, is nicotinic acid. This cured dramatically pigs which had become ill on the above maize diet. (See accompanying photographs.)

Pigs which were bedded on wheaten straw, of which they ate large amounts, thrived well on the above maize diet.



The opposite photograph shows the appearance of a pig when six months old after 17 weeks on the maize+casein diet. Her weight was then only 36 lb.

The above photograph shows the same pig three months later, weight 129 lb. The diet had been the same in the interval except that 60 mg. of nicotinic acid had been added to her daily ration.

[Reproduced from the *Biochemical Journal*, by permission of the Editor.]

Experiments with Pigs on Diets Deficient in Eluate Factor (Vitamin B_2) and Filtrate Factor

In order to determine the requirements of the pig for other members of the vitamin-B_2 complex, it was necessary to employ a purified synthetic diet. The following basal diet was found satisfactory being as free as possible from B vitamins but otherwise complete:—

Purified maize starch	71
Purified casein	21
Cod-liver oil	2·5
Cotton seed oil	2·5
Salt mixture	3

This diet contained protein 18·1 per cent., fat 6·0 per cent. and carbohydrate 64 per cent., and had a nutrient ratio of 1 : 4·2. It was supplemented by vitamin B_1, riboflavin and nicotinic acid, which were given as pure chemicals. At first, wood-charcoal was also supplied as roughage, but this was found to be unnecessary and later discarded. The proportion of casein was reduced to 15 per cent. as the pigs increased in weight. Young pigs given this diet supplemented with 4 per cent. dry yeast increased in weight at a normal rate, and from the second week onwards a weekly average weight increase of 10·9 lb. was observed for a period of nine weeks. Animals which received the basal diet, vitamin B_1, riboflavin and nicotinic acid ceased to increase in weight after three to four weeks. Although the animals did not manifest any symptoms of

illness, they were obviously not receiving their full dietary requirements: to the diet of certain of the pigs eluate factor was added and to that of the remainder filtrate factor; the preparations containing these factors were made from liver. The condition of the animals was improved somewhat by addition of either filtrate factor or eluate factor.

An experiment was carried out in which nine pigs were used to determine the effects of deprivation of either eluate or filtrate factor; control pigs received both factors. The results may be briefly summarised as follows:—

(*a*) *Effect of Deprivation of Filtrate Factor.*—Growth was subnormal, the average increase in weight being only 3 lb. weekly. Appetite failed, there was an abrupt cessation of growth followed by a decline in weight and death of those not treated. A characteristic feature was a progressive flaccid paralysis of the hind-quarters. At first, it was noticed that the animals were weak in their hind-quarters and that their backs were sagging. "These symptoms increased day by day and the gait became unusual, the hind-quarters swinging as they walked. It appeared as if the back end of the pig were loosely attached to the rest of the body. The hind legs were slightly flexed at all three joints so that the hind portion of the body was lowered. The clumsiness of the movements of the hind-quarters was most noticeable when turning and increased day by day, the condition becoming progressively worse until, after about ten weeks from the commencement of the experiment, Nos. 58 and 61 were almost completely paralysed in their hind-quarters. They were unable to raise them from the ground and if lifted could not remain standing. It was a flaccid palsy and at no time spastic. . . . For some weeks the animals pulled themselves about with their front legs dragging the collapsed hinder end of their bodies, which were rotated laterally. At this stage the deep reflexes were absent and the pigs appeared to be insensitive over the distal half of their hind limbs, since pricking, either superficial or deep, elicited no response. The fore quarters and head and neck were unaffected. The pigs could still eat but had to be fed by hand." Haematological studies carried out on these animals revealed a moderate degree of anaemia in which both the number of the blood corpuscles and the concentration of haemoglobin were reduced to about two-thirds of their normal values; there was little alteration in the size of the corpuscles.

(*b*) *Effect of Deprivation of Eluate Factor.*—Pigs receiving the filtrate factor remained in better condition than those receiving only the eluate factor, and none of them appeared particularly ill, although body weight became prematurely stationary. A striking feature, however, was that all of them suffered from typical epileptic fits, the severity and frequence of which increased with the length of time of the deprivation. "The pig ran round in apparent terror, screamed (epileptic cry) and dropped as if shot, making no effort to guard the fall; tonic spasms followed during which the legs were extended. The pig became deathly white. This first stage was succeeded by a clonic stage, during which the limbs were jerked about violently; there was grinding of the teeth and sometimes discharge of urine. The comatose stage followed; respiration was at first deep and stertorous, gradually becoming shallow. The pig looked as if dead but in a few minutes the colour improved, consciousness was recovered and the animal got up languidly and resumed his previous occupation, *e.g.*, feeding. The duration of the fits was from a few minutes to a quarter of an hour. In the intervening periods the pigs appeared to be quite well. Minor epileptic manifestations were also observed in which the animals appeared dazed, butted into obstacles, tottered about without always actually falling and then rapidly regained consciousness." The epileptic seizures ceased after the eluate factor was added to the diet. Haematological studies revealed that deprivation of the eluate factor caused a microcytic hypochromic anaemia, the diameter of many of the corpuscles being about 4 μ (the normal measurement being 6μ).

Pigs which received both eluate factor and filtrate factor did not thrive as well as animals given 4 per cent. of dried yeast as a source of vitamin B. This indicates that pigs require at least one unidentified essential nutrient of the vitamin-B complex in addition to vitamin B_1 and the four components of the vitamin B_2 complex described above. Pigs increased in body weight at the optimal rate when given the basal diet supplemented by 4 per cent. dried yeast; animals which received only 2 per cent. dried yeast increased in weight at a suboptimal rate.

The practical implication of the above experiments remains to be determined. In the recent publication from the National Institute for Research in Dairying, Reading, the authors conclude that the requirements of the pig for the vitamin-B complex are quite high, but that "under conditions existing in this country, pig rations contain a large proportion of wheat offal or whole grain and a deficiency of the vitamin-B complex is most unlikely to occur in practice." (Foot, Golding and Kon, 1938.) At the present time, however, many of the pigs of this country are being reared on commercial diets of unknown composition, and it seems unwarrantable to exclude the possibility of a vitamin-B deficiency occurring under such circumstances. The papers of

Fishwick (1937) and McEwen (1937) are of especial interest in connection with the occurrence of necrotic enteritis, and from the evidence of these workers it is clear that this disease can occur independently of specific bacterial infection, of parasitic worm infestation or of coccidiosis, but may be associated with malnutrition. The recent communication of Pickup (1939) is also suggestive of a deficiency of one of the components of the vitamin-B_2 complex. It is to be hoped that practitioners will not hesitate to record similar findings or to consider the clinical findings of the experiments described above in the light of their own experiences.

A. N. WORDEN.

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ROYAL AGRICULTURAL SOCIETY

At a council meeting of the Royal Agricultural Society of England, presided over by the Earl of Athlone, Mr. John Evens, the noted breeder and exhibitor of Lincoln Red cattle, was nominated for the presidency in 1940, when the show is being held at Lincoln. Sir Walter Gilbey, who has been a member of the Society for 50 years, was elected a life governor and vice-president.

It was announced that much support had been given to the views of the Society expressed in their letter to the Ministry of Agriculture, urging the dressing at the ports of entry of all imported cattle visibly infested with warble fly.

Figures regarding the proportion of porker to bacon pigs in this country were given by Sir Merrik Burrell in a memorandum he had presented for the Veterinary Committee's consideration, in connection with the unsatisfactory state of the Bacon Pigs Marketing Board's scheme. He pointed out that most people seem to think that the bacon pig is the pig of primary importance, whereas two-thirds of the pigs in Great Britain are utilised by the pork market; while the pork market is completely protected from imports, so that its price is governed by supply and demand.

It was reported that for the Royal Centenary Show at Windsor there is the biggest entry of machinery and implements since 1919. Anxious to assist in the preservation of the Chillingham herd of Wild White cattle, the Society is giving £10 to the fund for that purpose.

REVIEW

[Principles of Veterinary Science. By FREDERICK BROWN HADLEY, D.V.M., Professor of Veterinary Science in the University of Wisconsin, and Veterinarian of the Wisconsin Agricultural Experiment Station. Third Edition. 594 pages. 126 illustrations. W. B. Saunders Company, Ltd., London and Philadelphia. Price 18s. net.]

The first impression obtained on glancing through this book is that the author has attempted to encompass too wide a field between its covers.

Not only does it aspire to be a comprehensive work on animal physiology (Part I) but a considerable encyclopaedia on veterinary matters. Part II, entitled "Animal Diseases," is subdivided into such varied subjects as Veterinary Medicine, General Pathology, Animal Restraint and Surgery, Obstetrics, Unsoundnesses, etc.

The information is up to date and there is much of general interest concealed under the many and various headings. But these, in places, become excessive and make reading disconnected. The information could with advantage be compressed into a more concise form (*e.g.*, p. 75).

Though the veterinarian would need to consult more specialised works, the agricultural student and the "lay" teacher should find this publication of considerable interest and all would appreciate the well-selected illustrations and charts.

ANDROGENS AND THE OVARY

In a recent issue of *Nature*, we read that M. Mazer and C. Mazer (*Endocrinology*. **24.** 175. 1939) have found that, in the immature rat, prolonged administration of the androgen testosterone propionate caused a decrease in the weight of the pituitary, adrenals, ovaries and uterine horns and inhibition of oestrus with mucification of the vaginal epithelium. The degree of uterine atrophy was not in proportion to the ovarian atrophy, probably because the suppression of oestrogen production was partly counterbalanced by the direct stimulative effect of testosterone on the uterus. The adult rat reacted similarly except that the pituitary gland showed no significant decrease in weight. The deleterious effect of prolonged testosterone treatment on the ovaries was temporary. Restitution of structure and function occurred within 29 days. The literature and the authors' experiments showed that the duration of treatment was the determining factor in the effect of testosterone on the ovaries; short treatment produced stimulation, and prolonged treatment depression. The ovarian atrophy, in the authors' opinion, was secondary to pituitary inhibition.

NATIONAL VETERINARY MEDICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND

Quarterly Meeting of Council

The Council of the National Veterinary Medical Association met for its quarterly meeting on the afternoon of Tuesday, April 4th, when there was a large attendance of members. The President (Major Brennan DeVine) occupied the chair and there were also present: Messrs. D. J. Anthony, J. R. Barker, F. Beckett, Dr. W. P. Blount, Messrs. A. D. J. Brennan, H. E. Bywater (Hon. Treasurer), D. Campbell, F. Chambers, B. A. Claxton, J. B. Dier, T. A. Dobie, J. J. Dunlop, H. Scott Dunn, Dr. J. T. Edwards, Messrs. A. A. Forsyth, J. Fox, F. C. Gillard, L. St. Bel Golledge, Lieutenant-Colonel H. Greenfield, Mr. R. C. G. Hancock, Dr. Tom Hare, Messrs. J. R. Hewer, H. Tudor Hughes, Major H. Kirk, Messrs. W. W. Lang, W. R. McKinna, J. W. McIntosh, R. Barons Nelder, R. H. H. Over, J. Small, Dr. A. W. Stableforth, Messrs. H. W. Steele-Bodger, Henry Sumner, Alex. Thomson (Beckenham), A. H. Watson, T. Wilkinson, Dr. W. R. Wooldridge (Hon. Secretary), and Mr. T. L. Wright, together with Mr. C. O. Langley (Solicitor) and Mr. F. Knight (Secretary).

The minutes of the January meeting of Council, which had received publication in the official journal of the Association, were taken as read, confirmed and signed by the President on the motion of Mr. Tudor Hughes, seconded by Mr. Barker.

There being no matters arising from the minutes, the Secretary read the list of those who had sent apologies for their inability to attend the meeting, as follows: Messrs. S. G. Abbott, P. D. Baylis, Horace Bell, Professor Geo. F. Boddie, Messrs. T. A. R. Chipperfield, P. Crosfield, Professor T. Dalling, Messrs. P. F. Dolan, A. Gofton, Dr. H. C. D. Golledge, Mr. O. V. Gunning, Professor Share Jones, Messrs. A. McLean, G. P. Male, A. B. Mattinson, Professor Wm. C. Miller, Professor W. M. Mitchell, Dr. R. F. Montgomerie, Messrs. A. F. O'Dea, D. S. Rabagliati, E. Brayley Reynolds, Alex. Robertson, Lieutenant-Colonel P. J. Simpson, Messrs. R. H. Smythe, H. P. Standley (Sen.), W. Lyle Stewart, Henry Taylor, Alex. Thomson (Glasgow) and Professor G. H. Wooldridge.

Correspondence

(1) From the officers of the National Association for the Prevention of Tuberculosis, giving particulars of the 25th Annual Conference of the Association to be held at Belfast from June 29th to July 1st, 1939, and inviting the appointment of delegates. The Council appointed the President or his nominee in this capacity.

(2) From Sir Frederick Hobday, dated March 17th, addressed to the Secretary, requesting him to convey to the President and Council his deep appreciation of their letter extending sympathy with him in his illness and expressing the hope of his speedy and complete recovery. Sir Frederick's communication stated that he was better but had recently sustained a relapse and was informed by his medical adviser that he "must be contented to be a prisoner until the arrival of the warm weather."

(3) From Dr. F. C. Minett, of the Research Institute in Animal Pathology, Camden Town, dated March 13th, 1939, and addressed to the Secretary, as follows:—

"Some time ago—after I had been awarded the Dalrymple-Champneys Prize—I said I desired to write you regarding the method of choosing the Prizeman. I hope my doing so will not be considered presumptuous, particularly as I know there are regulations laid down regarding procedure, but I have the feeling that some amendment is necessary. In short, I consider that there should be no question of 'nomination' for the prize, more especially when, as I assume, the right of nomination is restricted to a limited number of people, namely, members of the Council of the Association. It would seem obvious that under present conditions a most worthy individual may never be nominated—simply because he may never have been fortunate enough to 'catch the Speaker's eye'—and therefore cannot be selected. The selection in any case must be a highly invidious task and hence one can well understand the sentiment that prizes of this sort ought never to be awarded at all. In my view, however, the position would be improved if the choice were in the hands of a small committee, representative of various interests in the profession, whose business it would be to make a proper enquiry as to the merits of individuals. In this way, a small list of persons could be compiled who might normally be expected to receive the award during the space of a few years. It would be the duty of the committee year by year to revise this list, with consequences which, in my opinion, would be more just to individuals than is the case at present and which would enhance, if I may say so, the dignity of the prize."

The President said that in connection with that letter from Dr. Minett he would like to take the item (8) on the agenda, "To receive nominations for the Dalrymple-Champneys Prize, 1939, and to elect a Committee to consider and report on the nominations." The regulations of the Association provided for a Committee to be elected, and the composition of that Committee in the past had been the President, Professor Dalling, Professor Wooldridge, and the donor. He suggested that they should now receive nominations for that selection committee.

The Hon. Secretary proposed that the individuals who had already been recipients of the prize, together with the President and the donor, should form the committee. In that way they would secure the services of people who were entirely unconnected with the possible

award. He would also suggest that Dr. Minett's letter be sent to the General Purposes Committee for consideration. Personally he found himself in sympathy with it, for he thought that they might effect an improvement in the way in which those nominations were made.

Dr. Wooldridge's proposals were seconded by Dr. Stableforth and unanimously agreed.

(4) From Messrs. Webber and Williams, Solicitors, of Ampthill, Bedfordshire, acting on behalf of a farmer who was being sued for payment of the cost of remedies supplied for the treatment of contagious abortion in cattle. In this connection the President said that Council would remember that at the last quarterly meeting they had a similar case in which, on behalf of the farmer against whom a case was being brought, the Association had secured an analysis of the material, and they were prepared to give evidence in court. He understood that that case, which was to have been heard at Reading, had been settled out of court, however. The Association were at the expense of having that analysis and in view of the fact that they were likely to have many such applications throughout the country for support of that sort, he thought the Council had better know of that letter before the Association took any definite action in the matter and committed itself to any expense.

Dr. Stableforth observed that the Finance and General Purposes Committee had appointed a sub-committee to go into any evidence of that nature, and that in order to try and get any further evidence it could in regard to those products on sale which apparently did not do their job a notice had been inserted in the *Record* requesting members to forward any available information. He took the opportunity of asking members who had evidence to send it along; a special form for details had been drawn up and was available on request.

Mr. Hewer said that the preparation with which they were now concerned was a different one from that analysed in the former case, which was settled out of court.

The President suggested that Dr. Stableforth should have an interview with the counsel in the case now before them.

After further discussion, it was resolved :—

(i) (In connection with the particular case) "That Dr. Stableforth be asked to consult with the counsel in the case and, if possible, secure an analysis of the material, the Association to be re-imbursed for the expense of such analysis and for other charges if the case is settled out of court."

(ii) (As a general principle) "That the N.V.M.A. take up only such cases as are brought forward from the National Farmers' Union or allied societies, in order that the Association may co-operate with them in any action to be taken."

Membership of the Association

The Secretary reported that the number of members on the register of the Association after the January meeting of Council was 2,088.

Obituary.—The Secretary now read the obituary list as follows, the members standing in tribute to the memory of the deceased : Mr. W. H. Brooke (Weston-super-Mare) ; Mr. H. L. Gravelle (Llandilo) ; Mr. R. Herbert (Rochdale) ; Mr. Henry Gray (London) ; Mr. R. C. Robinson (Carlisle) ; Mr. D. Drummond (Newton Abbot) ; Mr. T. A. B. Cocksedge (Amersham).

Resignations.—The list of members who had sent in resignations from the Association was read as follows, the Secretary informing the Council of the reasons for these resignations where such were available : Mr. D. Clerk (Stonehaven) ; Mr. E. Heeley (Huddersfield) ; Mr. C. F. March (Braintree) ; Mr. W. W. Reekie (London) ; Mr. W. E. Schofield (Devon) ; Major L. R. Swifte (R.A.V.C.), Mr. G. E. Tillyard (Littlehampton) ; Mr. J. H. Wynne (Denbigh).

New Members.—On the proposition of Mr. McIntosh, seconded by Mr. Spicer, the following persons, whose names either appeared on the agenda or were now reported to the Council, were elected into membership : Messrs. D. B. Angus (Minehead) ; G. W. Argo (Udny) ; T. C. Arnold (Cavan) ; S. F. Barnett (Cambridge) ; D. W. Caldwell (Sheffield) ; M. A. Carmichael (Edinburgh) ; A. J. Cassar (Liverpool) ; C. N. Chappel (Whitburn) ; D. S. Clouston (Edinburgh) ; T. F. Connolly (Blackrock) ; R. C. Crowhurst (Newmarket) ; T. M. Docker (Whitland) ; H. Doyle (New Zealand) ; G. M. Dunbar (St. Columb) ; W. W. Dunlop (Ballymoney) ; B. C. M. Edmonds (Penzance) ; J. M. Farrell (Cashel) ; W. H. France (Liverpool) ; Adam Fulton (Gold Coast) ; J. Grant Gordon (Galston); C. S. Grunsell (Bristol) ; J. W. Harshaw (Banbridge) ; H. G. L. Harvey (St. Columb) ; J. W. Heney (Dublin) ; J. R. B. Hepburn (Kidderminster) ; R. L. Humm (Cheam) ; K. M. Jobson (Berwick-on-Tweed) ; J. D. M. Jack (Sudan) ; D. W. Jolly (London) ; A. G. E. Lalor (Godalming) ; J. Lawson (Llandyssul) ; H. B. Luxmoore (Edinburgh) ; D. J. Macaulay (Carmarthen) ; J. A. McGranaghan (Dublin) ; A. M. Macleod (Kirriemuir) ; R. I. Macrae (Edinburgh) ; P. A. Mathew (Carmarthen) ; J. Newhouse (Lancaster) ; R. H. Oddy (Manchester) ; R. P. Ovington (Reading) ; D. W. Owen (Swansea) ; R. Paine (South Africa) ; J. D. Pemsel (Penzance) ; S. E. Piercy (Kenya) ; R. W. Roach (Chingford) ; J. F. Ryan (St. Helens) ; D. C. Scott (Lockerbie) ; Miss Phyllis Stubbs (Liverpool) ; Miss Muriel Yelden-Thomson (Abingdon) ; Messrs. R. E. S. Tuckey (Whitchurch) ; P. J. Tunney (Wymondham) ;

H. F. Turner (Glasgow); R. E. Williams (Manchester) and S. W. Wood (Greenlaw).

The Secretary informed the Council that the election of those members brought the total membership of the Association to 2,127, which constituted a new membership record. (Applause.)

Reports of Standing Committees

Organising Committee.

Reports of meetings of this Committee were laid before the Council, that of the meeting held on March 6th having been circulated, while Mr. T. L. Wright (Chairman) read the report of the meeting held on April 3rd. Mr. Wright moved the reception and adoption of these reports, Colonel Greenfield seconding the motion. The reports were as follows:—

Meeting on March 6th, 1939.

A meeting of the Organising Committee was held at 36, Gordon Square, W.C.1, on Monday, March 6th, 1939, with Mr. T. L. Wright in the Chair.

The minutes of the previous meeting were read and signed as correct.

Broadcast Talks.—A letter sent by the Chairman to the North Regional Offices of the B.B.C., and supported by the Lancashire, Yorkshire and North Midland Divisions and the Society of Veterinary Practitioners, was read and approved. The letter protested against the giving of advice on treatment in a series of talks broadcast by a layman under the title "Faithful Friends," and requested that in future talks in this or any similar series, suggestions as to diagnosis and treatment beyond everyday first-aid should be avoided. The willingness of the Association to give advice or help to the B.B.C. at any time in matters pertaining to animals was also expressed. The reply received from the B.B.C. was laid before the Committee and it was agreed that no further representations were necessary.

R.S.P.C.A. Clinic at Folkestone.—Consideration was given to a letter from a member relative to the R.S.P.C.A. Clinic at Folkestone. It was agreed that the points raised in this letter should be brought to the notice of the sub-committee at present consulting with the head office of the R.S.P.C.A., on collaboration between the profession and the Society.

Co-operation with the P.D.S.A.—The Committee had before it points forming the basis of the scheme for the co-operation of veterinary surgeons with the People's Dispensary for Sick Animals of the Poor in the treatment of sick animals of the poor as agreed to by the Council of the Royal College of Veterinary Surgeons and the Council of Management of the P.D.S.A. The matter was discussed at length by the Committee in private and later with Mr. Bridges-Webb, General Secretary of the P.D.S.A.

Some disappointment was expressed over the inability of the R.C.V.S. to fall in with suggestions made by officers and by the Finance and General Purposes Committee of the Association that the proposed announcements to the profession and the Press should be deferred until the appropriate committee and the Council of the N.V.M.A. had been allowed time to consider the matter, in order that the Association might be able to ensure the satisfactory working of the scheme in practice and enable, if possible, the Association to support the Royal College in this matter.

In discussion, some anxiety was expressed on many points, including the following: the preliminary diagnosis was to be made by the technical officer of the P.D.S.A.; veterinary surgeons were not to be allowed to visit P.D.S.A. clinics; the question of whether in actual practice the local procedure would not in fact involve "covering"; the advisability of private arrangements between the Society and individual veterinary surgeons as to fees; the lack of representation of the profession, through the N.V.M.A., on the P.D.S.A.; the absence of any assurances from the Royal College that the activities of the P.D.S.A. would be strictly confined to the treatment of sick animals of the poor, or that adequate measures would be taken to prevent abuse by those able to pay a veterinary surgeon's fee.

Mr. Bridges-Webb discussed some of these points with the Committee. It was agreed that further consideration by the Association was necessary, and it was eventually resolved to recommend that an editorial approving the principle of co-operation between the veterinary profession and animal welfare societies be inserted in the *Veterinary Record*, and that the "agreement" between the Royal College and the P.D.S.A. be discussed by both the Committee again and by the Council at their meetings in April.

Meeting on April 3rd, 1939.

A further meeting of the Organising Committee was held at 36, Gordon Square, W.C.1, on Monday, April 3rd, Mr. T. L. Wright being in the Chair.

The minutes of the previous meeting having been circulated, were taken as read and signed as correct.

Subject to further modifications to meet suggestions made in the course of discussion, the Committee agreed to draft proposals for improving collaboration between the profession and the R.S.P.C.A. as amended in the light of informal discussions between the Hon. Secretary of the Association and the Chief Secretary, R.S.P.C.A.

It was decided to recommend that these proposals, which are set out in full below, should, if acceptable to Council, be referred to the R.S.P.C.A. and the S.S.P.C.A. for official consideration and adoption.

The Committee approved the actions that had led to the retraction of two separate newspaper statements that at certain R.S.P.C.A. clinics free treatment was available to all animal owners.

The Committee received with approval an intimation from the R.S.P.C.A. that Colonel R. J. Stordy had been appointed to the Council of that Society in the place of Colonel P. J. Simpson, who had retired on account of the urgency of private affairs.

Further consideration was given to the arrangements made between the R.C.V.S. and the P.D.S.A., and to the resolutions from the Scottish Branch, the West of Scotland, the Dumfries and Galloway, and the South-Eastern Divisions on the subject, which appear on the agenda for the meeting of Council.

After a very full discussion, the Committee approved the principle of co-operation with the P.D.S.A., as with other animal welfare societies, provided that proper safeguards were established.

A sub-committee was thereupon appointed to consider potential difficulties such as those

pointed out in the previous report from the Committee and to draw up concrete proposals for promoting collaboration with the P.D.S.A.

The members appointed to form this sub-committee were: the Chairman (Mr. T. L. Wright), Mr. Steele-Bodger, Mr. Griffiths, Professor Mitchell and the Hon. Secretary, with power to co-opt.

The attention of the Committee was drawn to a statement alleged to have been made by Lady Terrington and reported in the *Hastings Observer* that: "It does not matter whether an animal belongs to a millionaire or a pauper, it can be taken to the P.D.S.A. for nothing. There is just a box with the words 'Thank You.'"

It was decided to bring these remarks to the notice of Mr. Bridges-Webb and to inquire whether any steps had been taken to repudiate them publicly.

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ORGANISING COMMITTEE'S MEMORANDUM

Free Treatment Schemes

The Organising Committee of the N.V.M.A. have made a review of the working of the arrangements under which members of the veterinary profession are co-operating with local branches of the R.S.P.C.A. and the Scottish S.P.C.A., in providing free treatment of sick and injured animals of the poor.

In the light of the information made available to it for the purpose of this review, the Committee are of the opinion that it would assist in promoting a more orderly development of the work if a uniform procedure in making local arrangements could be adopted on the lines recommended later in this Memorandum. These recommendations have been drawn up after consultations with the headquarters of the R.S.P.C.A. and the S.S.P.C.A., and it is hoped that they will be sympathetically considered and adopted both by the local Divisions of the N.V.M.A. and the local branches of the two Societies for the Prevention of Cruelty to Animals.

The Committee are not in a position to advise which method of providing free treatment would be most suited to any particular district, and consider that this is a point which can best be decided by those concerned with the local arrangements, but the following recommendations are put forward with a view to their adoption as the principal standard conditions for the establishment and operation of free treatment schemes. In large cities it may be considered preferable to provide these facilities at a central clinic, or by a combination of the central clinic and the decentralised system. In sparsely populated areas, however, and possibly in small towns, the decentralised system would appear to be the better method.

Proposed Conditions

General

(1) In order to facilitate the effective co-operation between the Societies and the profession it has been agreed, subject to acceptance by the Councils concerned, that the R.S.P.C.A. and the S.S.P.C.A. shall consult the N.V.M.A. when about to co-opt a member of the profession to their Councils, and the N.V.M.A. agrees to appoint this co-opted member to its Organising Committee, if this arrangement is carried out.

(2) Any dispute that may arise between the local branch of the Society and the local veterinary surgeons, which fails to be adjusted satisfactorily locally, shall be submitted to the headquarters of the R.S.P.C.A. or S.S.P.C.A., and the N.V.M.A., who shall jointly endeavour to reach a settlement and if necessary adjudicate.

Central Clinics

(1) The clinic is for the treatment of sick and injured animals of the poor. While no animal or bird suffering acutely should be refused emergency treatment, patients whose owners are able to pay veterinary surgeons' ordinary fees should be referred to a local veterinary practitioner for subsequent treatment.

(2) When a local branch of the R.S.P.C.A. or S.S.P.C.A. expresses to its headquarters a desire to establish a clinic, the Society's headquarters should communicate with the headquarters of the N.V.M.A. with a view to arranging conversations between the local branch of the Society and the local Division of the N.V.M.A., thereby facilitating the amicable development locally of the project along the general lines recommended by the parent bodies.

(3) All veterinary surgeons resident or practising in the city or town concerned, whether members of the N.V.M.A. or not, should so far as possible, be invited to take part in the running of the clinic. (This does not mean that a veterinary surgeon who establishes a new practice shall immediately and necessarily be invited to assist at the clinic.) Those who agree to do so should be appointed members of the Clinic Committee which shall be formed and which shall have the immediate responsibility of running the clinic. The Clinic Committee shall be adequately represented on the Society's Branch Committee.

(4) The detailed organisation of the clinic should be a matter for arrangement between the veterinary surgeons concerned and the Branch Secretary of the R.S.P.C.A. or S.S.P.C.A., but should be subject to the approval of the Veterinary Adviser to the headquarters of the particular Society and to the Organising Committee of the N.V.M.A.

In this connection it is recommended:—

(i) That it should be the responsibility of the local branch of the R.S.P.C.A. or S.S.P.C.A., to have an almoner on duty at the clinic whenever this is practicable to receive patients and to enquire into the bona fides of their owners, but the attending veterinary surgeon shall have discretionary power to refuse to treat a case which he thinks is not one which comes within the scheme as defined in Clause 1, if by so doing the animal suffers no harm.

(ii) The local branch should provide clerical assistance for the keeping of records of cases seen at the clinic.

(iii) The Branch Committee should also be responsible for the equipment and maintenance of the clinic, and for providing assistance for the veterinary surgeon in attendance while he is carrying out his work.

(iv) The Branch Committee should be asked to provide all drugs, dressings, instruments, etc., and these should be in the possession only of the attending veterinary surgeons.

Any payments made at the clinic or offered by people attending the clinic shall be placed in the box provided and this money should be used to pay for the cost of the maintenance of the clinic.

(v) All major operations should be referred to the veterinary surgeon or veterinary surgeons practising in the area from which the patients come, except where adequate facilities are available for the performance of major operations by the resident or visiting veterinary surgeon, or

in cases of grave emergency when an immediate operation is considered essential. The cost of such operation should be a matter for arrangement in each individual case with the owner of the animal, the veterinary surgeon, and the R.S.P.C.A. or S.S.P.C.A. Branch Secretary.

(vi) The local branch of the R.S.P.C.A. or S.S.P.C.A. should advertise the central clinic, stressing the fact in the title that the work is carried on jointly by the N.V.M.A. and the R.S.P.C.A., or S.S.P.C.A., and emphasising that the treatment is carried out by veterinary surgeons, and stating the hours at which they will be in attendance.

(vii) Should the work of a central clinic grow to such an extent that it would seem advisable to appoint a whole-time veterinary surgeon to its staff, this shall only be done with the concurrence of the veterinary surgeons who have helped the clinic in the past. Under the new arrangement the latter veterinary surgeons shall continue as members of the staff of the clinic in an honorary capacity. The names of these honorary veterinary surgeons shall be displayed in the clinic.

If a whole-time veterinary surgeon is appointed he shall not be allowed to engage in private practice and shall be required to sign a bond precluding him from carrying on practice within a prescribed area of the clinic for a number of years.

Decentralised System

The decentralised scheme differs from the centralised system in that cases are attended to at the veterinary surgeon's own premises at agreed times.

When a local branch of the R.S.P.C.A. or S.S.P.C.A. expresses to its headquarters a desire to provide such facilities, the Society's headquarters should communicate with the headquarters of the N.V.M.A. with a view to arranging conversations between the local branch of the Society and the local Division of the N.V.M.A., so that the project may develop amicably locally along the general lines recommended by the parent bodies. These are as follows:—

(1) All veterinary surgeons resident or practising in the district, whether members of the N.V.M.A. or not, should, so far as possible, be given the opportunity of assisting with the work. (This does not mean that a veterinary surgeon who establishes a new practice shall immediately and necessarily be invited to participate in the scheme.)

(2) The R.S.P.C.A. or S.S.P.C.A. Branch Committee should be responsible for defraying the cost of drugs and dressings.

(3) The veterinary surgeon or veterinary surgeons who agree to co-operate should be members of the Local Clinic Committee, if one exists, and be represented on the local R.S.P.C.A. or S.S.P.C.A. Branch Committee by a nominee or nominees of the local N.V.M.A. Division.

(4) Owners of animals should be required to produce a voucher supplied by an official of the R.S.P.C.A. or S.S.P.C.A., the veterinary surgeon himself, or other responsible person before treatment is given.

(5) The local branch of the R.S.P.C.A. or S.S.P.C.A., should advertise the scheme, stressing the fact that it is a joint arrangement with the N.V.M.A. The advertisement should also give the addresses of the veterinary surgeons participating in the work, and the times at which treatment can be obtained at their surgeries.

CO-OPERATION WITH THE P.D.S.A.

The PRESIDENT said that he thought it might help the business of the Council if, as the matter of co-operation with the People's Dispensary for Sick Animals was mentioned in the report of the Organising Committee, they were now to take, in conjunction therewith, the resolutions on this matter which had been forwarded to headquarters from certain Divisions.

The HON. SECRETARY begged to be allowed to suggest that it might be more expeditious if they accepted the report of the Committee excluding the matter of the negotiations with the P.D.S.A., which they could deal with separately. There were many other matters in that report which might be overlooked if they went straight on to the consideration of that relating to the P.D.S.A. He therefore moved that the Council deal with this report other than the portions which referred to the P.D.S.A. and that they then deal with the P.D.S.A. matter, together with the resolutions which had been received from the Divisions concerning it.

The resolution was seconded by Dr. HARE and carried unanimously.

The PRESIDENT accordingly invited discussion of the report other than the portion referring to the P.D.S.A., but there was no response. Accordingly he called upon the SECRETARY to read the resolutions received from Divisions. These were as follows :—

(1) From the Scottish Branch :—

"The Council of the Scottish Branch of the National Veterinary Medical Association of Great Britain and Ireland, having considered the letter sent to the members of the veterinary profession by the President of the Royal College of Veterinary Surgeons on the subject of the People's Dispensary for Sick Animals and resolutions received from the constituent Divisions of the Branch, record their opinion as follows :—

(i) A working agreement with the P.D.S.A. is desirable in the best interests of the Veterinary Profession, the P.D.S.A. and the animals of the poor.

(ii) The Branch attaches the greatest importance to the arrangements to be made for the proper selection of the cases to be referred to the veterinary surgeon by the technical officer of the P.D.S.A.

(iii) The Branch views with concern the position in which the veterinary surgeon would appear to be placed of having to accept cases, the diagnosis of which had already been undertaken by an unqualified person.

(iv) The Branch is of the opinion that before an agreement can be

reached, which would be acceptable to the profession as a whole, further detailed discussions would be necessary at which the Council of the National Veterinary Medical Association should be adequately represented."

(2) From the West of Scotland Division :—

"That this General Meeting of the West of Scotland Division approve the principle of free treatment by the profession to animals of the poor, but are not prepared to accept the arrangement come to between the R.C.V.S. and the P.D.S.A. without further consideration."

(3) From the South-Eastern Division :—

"This Division views with concern the rapid development of the proposed arrangement between the Royal College of Veterinary Surgeons and the People's Dispensary for Sick Animals. It urges that the Council of the N.V.M.A. should initiate a very careful enquiry into the probable results of such an arrangement and should try to secure adequate professional representation in its control."

(4) From the Dumfries and Galloway Division :—

"This special meeting of the Dumfries and Galloway Division approves in principle of co-operation with any charitable organisation that has for its object the free treatment of animals of the poor. The conditions, however, as stated in the confidential letter of the 6th instant to members of the veterinary profession from the President of the Royal College of Veterinary Surgeons are unacceptable to the members of this Division. It is of the opinion that before an agreement can be reached which would be acceptable to the profession as a whole, further detailed discussions would be necessary at which the Council of the National Veterinary Medical Association should be adequately represented."

Mr. Steele-Bodger asked if the Council were prepared to accept any further resolutions on that subject.

The President replied that the Council was now dealing with the report of the Organising Committee so far as it referred to the P.D.S.A. and were open to hear any resolutions in connection with that matter.

Mr. Steele-Bodger said that he had a resolution to bring forward from the Society of Veterinary Practitioners, as follows :—

"That this Society welcomes the rapprochement between the People's Dispensary for Sick Animals and the Royal College of Veterinary Surgeons and recommends the formation of a joint committee to evolve a scheme whereby an arrangement may be made with the People's Dispensary for Sick Animals acceptable to the profession."

He thought the Chairman of the Organising Committee would be prepared to accept that in his report.

Mr. Wright expressed assent.

The President now said that he thought the Council would expect him to give some explanation of his position as President, in regard to the action which had been taken in relation to negotiations which had been proceeding between the Royal College of Veterinary Surgeons and the People's Dispensary for Sick Animals. On February 10th he received a letter from the Secretary of the Royal College, asking if he would call and see the President of that College and discuss with him certain matters, among them that of the P.D.S.A. He went to the Royal College on the afternoon of February 13th, saw Mr. Livesey and had a discussion with him and (later) Mr. Bridges-Webb, General Secretary of the P.D.S.A. They explained the scheme to him and told him what had been done by the Royal College of Veterinary Surgeons. He informed them that he could not commit the Association and that the matter would have to be dealt with in committee and submitted to the Council for further consideration. He stated further that the General Purposes Committee was meeting the following week and that he would bring the matter before the Committee on that occasion. Accordingly he brought it before the Committee at the meeting, Mr. Bridges-Webb being present. Strictly speaking, it was a matter for the Organising Committee, and it was eventually considered by that body : again Mr. Bridges-Webb attended and there was a further discussion. At a meeting of the Organising Committee held the day previous to that Council meeting, the matter was brought up again.

Proceeding, the President said that it was not for him either to pass any laudatory remarks about the action of the Royal College of Veterinary Surgeons or to criticise them. They (the R.C.V.S.) were considering that matter in connection with the P.D.S.A. in October : he did not hear anything from them until February, by which time they had been considering it for four or five months. Time, of course, would prove the wisdom or otherwise of their conclusions. The question was that he did not want his own personal view to commit the Association in any way : he wanted the Council of the Association to have every opportunity of giving it full consideration, but what did occur to him, as a man outside the purview of the question, was that the P.D.S.A. employed men who were unqualified and they were suggesting that these unqualified men should continue to receive animals at their centres, diagnose cases, and then

say whether a case was to be treated by them or whether it was to be sent on to a veterinary surgeon. If the veterinary profession was going to co-operate in that scheme, in his view the profession were supporting a form of future quackery. Mr. Bridges-Webb said that they were the biggest quacks in the country: those were his own words, and if the profession were going to help them forward they were going to increase the numbers of their technical officers and their quackery.

If the veterinary profession could get the P.D.S.A. work in addition to that which they were doing for other animal welfare societies, with the proviso that diagnosis should be left to the veterinary surgeon, then he was all for it, to help them; but their suggestion was all the other way: that it should be left to the technical officer to say what cases should go to the veterinary surgeon and what should not.

At the first meeting of the Organising Committee they were informed by a member of 40 cases in which mistakes had been made by employees of the P.D.S.A. and of many other cases which had been treated on wrong lines—in which the diagnosis was at fault.

Concluding, the President said that he wanted to make his position quite clear as to how that Association was brought into contact with the P.D.S.A.

Dr. HARE said that if Mr. Steele-Bodger's resolution was before the meeting he had great pleasure in seconding it; but he would like to add one or two observations in the hope that they would clarify discussion. He hoped the Council would unanimously welcome the rapprochement and that they would endeavour to form a joint committee with the R.C.V.S. to negotiate with the P.D.S.A. That was the burden of Mr. Steele-Bodger's proposal which he had seconded, but he hoped that when that resolution had passed the Council the President would permit discussion on the further question as to whether it was desirable that the Council should express any directions of principle as a guide to the joint committee. Could they deal with that resolution and then go on to discuss the principles?

The PRESIDENT said that he was a little bit unhappy about that resolution where they asked for a joint committee formed by that Council and the Council of the R.C.V.S. He was rather unhappy about it because during the last quarter he had asked for a joint committee to discuss the question of the Loveday Report so that they could come to some agreement. The R.C.V.S. had since notified them that they would be pleased, when they had finished their deliberations, to tell the representatives of the N.V.M.A. what conclusions they had reached, but they would not work together. The present resolution would have been better if the R.C.V.S. had intimated that they would be willing to form a joint committee.

Mr. STEELE-BODGER replied that he was prepared to risk that. If the R.C.V.S. refused they could then form a committee of their own. He would like to move the formation of a small joint committee consisting, say, of three members of the N.V.M.A. and three of the R.C.V.S.—he would suggest that it be held under the auspices of the officers of the Association.

The PRESIDENT pointed out that a sub-committee was proposed in the report of the Organising Committee, to consist of the Chairman (Mr. Wright), Mr. Steele-Bodger, Mr. Griffiths, Professor Mitchell and the Hon. Secretary, with power to co-opt.

The HON. SECRETARY thought the intention of the resolution of the Organising Committee was to ensure the immediate examination of the probable effect of the proposals in practice, but he believed most of the Organising Committee were anticipating that they would get in touch with the R.C.V.S. His own view was still that decided by the Organising Committee, that they should examine the matter from the "National" point of view first, but he would personally welcome a definite instruction that at an early stage they should get into touch with the Royal College and leave it to the committees concerned to decide the numbers. Let them accept the report at the moment, bearing in mind the need for collaboration with the R.C.V.S. at as early a date as possible.

Mr. WRIGHT having seconded Mr. Steele-Bodger's resolution, the PRESIDENT announced that the Solicitor informed him that they could not form a joint committee. They could, however, recommend that certain members of the Association should meet a similar number of representatives of the R.C.V.S. by invitation.

Mr. STEELE-BODGER replied that he was quite prepared to alter his resolution to be in conformity with the regulations. He therefore suggested that they should form a sub-committee as suggested and invite a similar number of representatives of the R.C.V.S. to meet them.

The HON. SECRETARY then proposed "That the Special Committee recommended by the Organising Committee be appointed but that it be instructed by this Council to effect collaboration with the R.C.V.S. at as early a date as possible."

Mr. STEELE-BODGER stated that he considered that a travesty of his resolution. He was most distressed at the subversive feelings displayed in both bodies. His resolution was couched in terms with a view to eliminating those feelings. The President of the Royal College had recently offered them an olive branch and he was anxious that they should reciprocate. (Hear, hear.)

The HON. SECRETARY said that certain of Mr. Steele-Bodger's remarks seemed to necessitate

the repetition of the obvious fact that both the N.V.M.A. and the R.C.V.S. were anxious to get together. From recent conversations with the officers of the R.C.V.S., he was sure that that feeling was shared equally by the officers of the Royal College and the Association. He was simply speaking against the proposal made by Mr. Steele-Bodger in order to avoid binding the Council too rigidly to a definite policy at the moment. His amendment was really a suggestion as to the best way of carrying out that put forward by Mr. Steele-Bodger. Further, he added that in his opinion it was entirely out of order for any Chairman of a standing committee of that Council to move or accept, as Chairman, a resolution arising from a report of his own Committee which was before Council, without referring the matter to the Committee. Standing committees consisted of 20 members, and their reports were arrived at after careful discussion and should not be amended on the proposition of a Division meeting after the Committee, but before the report was placed before Council. Others might make such a proposition but not, it seemed to him, the Chairman of the Committee.

Mr. STEELE-BODGER interposed that nothing he had suggested was out of order.

Dr. HARE rose to say that the Solicitor on January 3rd had permitted Council to form similar machinery to that now proposed by Mr. Steele-Bodger, in order to deal with the question of the Loveday Report. On that occasion the Council unanimously passed that the R.C.V.S. should be invited to join with them in forming a joint committee.

The PRESIDENT said that the position, so far as he could make it out, was that the Committee recommended in the Organising Committee's report should form the "National" side of a joint committee they suggested should be formed with the R.C.V.S., and that the "National" should invite them to send representatives to that joint committee.

Mr. BYWATER suggested that Mr. Steele-Bodger and his seconder should allow their resolution to go forward without specifying the number of the representatives.

Mr. STEELE-BODGER replied that he was perfectly willing to accept that. Accordingly he would word his resolution as follows: "That an endeavour be made to form a joint committee, consisting of representatives of the Royal College of Veterinary Surgeons and of the National Veterinary Medical Association to evolve a scheme whereby an agreement may be made with the People's Dispensary for Sick Animals that will be acceptable to the profession."

Mr. WRIGHT (seconder) having agreed to the amendment of the resolution, it was put to the meeting and carried *nem con.*

Dr. HARE suggested that the Council might consider certain points which, in his view, might require the attention of their Solicitor. By their resolution Council had recognised the object of the rapprochement to be the provision of veterinary assistance to the sick animals and birds of poor persons. It occurred to him that they must try, in their negotiations with the P.D.S.A., to obtain a definition of eligibility—*i.e.*, a definition of what is a poor person. He would suggest that they should define a poor person as a member of a family the total income of which did not exceed £2 10s. 0d. per week. In the interests of the charity to prevent exploitation, as well as in their profession's interests, any applicant for the help of the clinic should be required to sign a declaration of the total family income. There was nothing in what he was saying that was original or that had not been tested in practice. What he had given to them was the definition used by the Public Medical Service in this country, when giving medical attention to the poor. Poor people were required by the almoner of the Service to sign a declaration to the effect that their family was in receipt of an income not exceeding £2 10s. 0d. a week. That definition of what was a poor person was a crucial point. Unless they reached an agreement with the P.D.S.A. on some such definition, the rapprochement was likely to founder.

Secondly, when the eligibility of a person applying to the clinic was in doubt some machinery was required whereby that doubt could be investigated. He would suggest that that machinery be a Committee of the veterinary surgeons in attendance along with the P.D.S.A. officials.

Thirdly, the veterinary services given at the clinics should be carefully defined. (i) Did veterinary attendance at the clinic include operations requiring the administration of an anaesthetic; (ii) Did it include the administration of biological products; (iii) Did it include the provision of certificates and reports on animals or birds for export, transit, sale, shows and common law purposes? (iv) Did it include visits by the veterinary surgeon to the houses of poor persons?

These were some of the questions exercising the minds of their colleagues in practice, which ought to receive the attention of the joint committee.

Lieutenant-Colonel GREENFIELD enquired if it was proposed that the conversations which were to be held by the joint committee were to be of a confidential nature. Colonel Greenfield added: "The question of the confidential nature of the discussion is raised in order that anyone discussing problems like this with us may feel assured that they will receive the consideration that is due to them and given to us."

The PRESIDENT replied that it would be confidential so far as the Committee decided. The Committee would of course report back to Council.

Mr. GILLARD said that he wished to speak concerning some safeguard to prevent the men who were the technical officers of the P.D.S.A. from resigning or leaving their posts and afterwards, as they did at present, starting up in opposition to veterinary surgeons. He thought that was very important because in some districts there were men advertising themselves "Late P.D.S.A.," and these letters misled many animal owners and the ignorant public to presume this implied some degree or qualification.

Mr. WRIGHT replied that Mr. Bridges-Webb had informed them that these men signed an agreement that they would not in any way set out to treat animals if they left the P.D.S.A. He had to admit, however, that that agreement was not binding in law.

Mr. CAMPBELL said that he took it that the points now being raised were not definite directions to the Committee, but rather suggestions for consideration.

Dr. STABLEFORTH, speaking with regard to the question of who was to do the diagnosis, said that he thought it probable that the Committee would welcome some guidance from the Council. In the case of the R.S.P.C.A. the diagnosis was to be done by themselves, but the position here was entirely different. It was a very important difference in principle and one on which he thought the Council would want to express an opinion for the guidance of the Committee concerned.

Dr. HARE observed that he had not mentioned anything on that point because he saw that it was all in the report, and he assumed that the Committee would keep to their document.

Mr. SUMNER said that if any agreement made with the P.D.S.A. differed very markedly from the revised arrangements for the existing free treatment schemes it was going to prejudice the position which the Association already held with the R.S.P.C.A. and which was embodied in the Committee's report on that matter. In view of the attitude of the P.D.S.A. in the past, it was all the more necessary that the conditions of service should embody ample safeguards, particularly as to the opening of new clinics and confining the activities to the animals of the genuine poor.

Mr. BYWATER stated that he considered it would be useless at the moment to insist that all diagnosis must be undertaken by the veterinary surgeon. Although he agreed with that in principle, if they were going to insist on that they might as well close the door on the negotiations.

Major KIRK pointed out that over a million cases were alleged to be treated each year and that the clinics were open day and night; so that if the veterinary surgeon was to diagnose every case that was brought in he would need to be present the whole time, and it would be a full-time occupation.

Mr. STEELE-BODGER expressed the view that the Council would not wish to tie the hands of the committee beforehand. Quite naturally nothing that the committee decided could be binding without coming back to the Council.

The motion for the reception and adoption of the report was now put to the meeting and carried.

Parliamentary Committee.

The report of this Committee was now read as follows by its CHAIRMAN, who moved its reception and adoption, Mr. NELDER seconding the motion :—

A meeting of the Parliamentary Committee took place at 36, Gordon Square, W.C.1, on April 3rd, with Dr. W. R. Wooldridge in the Chair.

The minutes of the previous meeting were taken as read and signed as correct.

A report was submitted on representations made by the officers of the Association to the promoters of the Riding Establishments (Registration and Inspection) Bill which had resulted in the Association's objections being entirely met by a substantial rewording of the offending clause.

Consideration was given to a Bill to extend the operation of the Protection of Animals Act, 1911, in respect of animals kept in captivity or confinement and released for the purpose of being hunted or coursed.

After discussion, it was agreed to suggest to Council that this extending Bill was unnecessary, as in the opinion of the Committee the main Act already provides sufficient protection for such animals. The Committee also decided to suggest that individual members of the Association should be invited to enlist the opposition of their members of Parliament to the Bill.

The Chairman reported on the action taken by the officers in connection with the refusal of the Ministry of Agriculture to allow members of the veterinary staff to serve on two of the Association's Special Committees.

The Committee expressed the view that the Association should continue to press for a reversal of that decision.

The motion was carried without discussion.

Appointments Committee.

The following report of this Committee was read by Mr. OVER (Chairman), he moving its reception and adoption, and the motion was seconded by Mr. SPICER and carried without discussion :—

A meeting of the Appointments Committee was held at 36, Gordon Square, W.C.1, on April 4th. Major R. H. H. Over occupied the Chair in the unavoidable absence of Mr. Chipperfield.

The minutes of the last meeting were read, approved and signed.

The General Secretary submitted a letter which had been received from a member

expressing approval of the steps taken by the Association in connection with appointments at greyhound racing tracks and promising to render whatever help he could in securing adequate salaries for whole-time appointments of this nature.

Arising from this it was decided to recommend to Council that the Association should draw up scales of minimum salaries for whole-time appointments other than with local authorities, agricultural colleges, etc.

Letters were read from the Hon. Treasurer of the Blue Cross Hospital, Woolwich, outlining the duties and conditions attaching to the post of resident veterinary surgeon there. In the existing circumstances, the Committee approved the action of the Chairman in sanctioning the publication of an advertisement inviting applications for this post. It was, however, decided to recommend to Council that the Association should adopt a commencing salary of £400 per annum as the minimum salary for whole-time veterinary appointments under animal welfare societies.

A letter was read which had been sent regretting the inability of the Association to insert an advertisement in the *Veterinary Record* relating to the post of assistant veterinary officer at an agricultural training institution unless the salary were raised to the Association's minimum of £400 per annum.

Veterinary Officers' and Public Health Committee.

The CHAIRMAN of this Committee (Mr. J. R. Barker) read the following report, moving its reception and adoption, Mr. WILKINSON seconding and the motion being carried without discussion :—

A meeting of the Veterinary Officers' and Public Health Committee took place at 36, Gordon Square, W.C.1, on April 4th, when Mr. J. R. Barker was in the Chair.

The minutes of the previous meeting were read, approved and signed.

A report was received from the Scottish Branch that in the opinion of a committee which had considered the matter on behalf of the Branch, there was no general evidence to show that detention officers were usurping the functions of meat inspectors under paragraph 3 of Part 1a of the First Schedule to the Public Health (Meat) Regulations (Scotland), 1932.

Consideration was also given to the observations of the same committee with regard to a specific complaint from a member. It was agreed that the Hon. Secretary of the Scottish Branch should be asked to assist in procuring the more detailed evidence which was regarded as necessary in the consideration of this particular case; and that it should then be left to the Chairman to decide whether the matter was one in which it was likely that any useful representations could be made.

It was reported that a South Wales local authority, in filling a vacancy for a meat inspector, would be offering a considerably reduced salary and would require the veterinary practitioner undertaking this work to perform his duties under the supervision of the full-time sanitary inspector. It was agreed to make inquiries into this possibility and that the Chairman, in consultation with the officers of the Association, be left to take any further action that may be deemed necessary.

In view of recent references in the Press to the nutritional aspect of preventive medicine, the Committee agreed to write to the British Association requesting that in any future conferences on the subject of nutrition arranged by them, arrangements should be made for the veterinary aspect to be considered.

Finance and General Purposes Committee.

The report of this Committee, which had been circulated to members of Council, was as follows :—

A meeting of the Finance and General Purposes Committee was held at 36, Gordon Square, W.C.1, on February 21st, 1939, with Major Brennan DeVine (President) in the Chair.

The minutes of the last meeting of the Committee and of the combined meeting on the same date with the Special Committee on Air Raid Precautions for Animals, and the Central Emergency Committee, copies of which had been circulated, were taken as read and approved.

Arising from the minutes:—

(i) It was reported that as the case in which a farmer was being sued by a company supplying a bovine anti-abortion product for payment for goods supplied had been settled following the proceedings being discontinued by the complainant company, it had not been possible to present in Court evidence procured by the Committee regarding the composition of the remedies involved.

Consideration was given to the question of what other use might be made of the analyst's findings, but having heard the views of the Association's solicitor, the Committee decided to take no further action.

Further letters were read from other sources, also relating to the alleged failure of similar veterinary preparations sold direct to farmers.

It was eventually decided:—

(*a*) To insert a note in the *Veterinary Record* intimating that these complaints had been received and requesting any members of the profession who know of similar cases to supply the Association with full particulars.

(*b*) That the complaints laid before the Committee and any further cases that may be reported in response to the *Record* announcement be referred to a sub-committee consisting of Dr. Stableforth, Mr. Chipperfield and Mr. Hancock for examination and report from the scientific point of view.

(*c*) To endeavour to arrange a meeting with the National Farmers' Union on the subject with a view to concerted action.

(ii) Letters in connection with the Report of the Veterinary Education Committee were read from:—

(*a*) The Ministry of Agriculture acknowledging receipt of the resolution passed by the Council at its January meeting.

(*b*) The Royal College of Veterinary Surgeons, enclosing copy of a letter addressed by the College to the Ministry.

(*c*) The Royal College of Veterinary Surgeons, addressed to the President, intimating that the Council of the College had agreed that after they had completed their consideration of the report, in consultation with the affiliated Colleges, it would be appropriate to invite representatives of the Council of the N.V.M.A. to a meeting, so as to inform them of the decisions made and to give them any information which may be desired, explaining the reasons which had led to the Council's decisions.

After discussion of this letter, it was decided to write again to the Royal College pointing out that the resolution passed by the Council of the Association proposed a conference to discuss points of detail arising out of the report, and reiterating the willingness of the Association to discuss the matter fully with the Royal College in order, if possible, to come to an agreed decision.

In view of the fact that the Editorial Committee would not meet again until the end of February, Mr. Steele-Bodger, as Chairman of the Editorial Committee, submitted a letter which had been received from the Hon. Secretary of the Scottish Branch concerning the resolution passed by the Branch with reference to the Loveday Report and published in the *Veterinary Record* of February 18th.

On the proposition of Captain Campbell, seconded by Professor Mitchell, it was agreed that a letter should be sent by the Chairman of the Editorial Committee to the President and the Hon. Secretary of the Scottish Branch explaining how the alteration complained of had occurred.

(iii) It was decided to refer to the Special Committee on Tuberculin Tests the reply received by the Parliamentary Science Committee from the Minister of Agriculture with regard to members of the veterinary staff of the Ministry serving on Special Committees of the Association.

(iv) The President informed the Committee that he had made arrangements for the Association to be represented at the Congress of the Royal Sanitary Institute by Lieut.-Col. J. A. Dixon, and that Dr. W. R. Wooldridge had agreed to attend on the Association's behalf the Third International Congress for Microbiology to be held in New York in September.

Membership Subscription.—On the proposition of Mr. Steele-Bodger, the Committee reconsidered the question whether a joint or reduced membership subscription should be instituted in the case of legal partners or father and son engaged in the same practice, and figures were presented showing the number of persons likely to be affected by this proposal.

As there was a feeling that the case of Colonial members should also receive consideration, the Committee decided to defer coming to a decision until information was available as to the number of oversea members who were members of the Association, and the various rates of subscription applying to membership of the British Medical Association.

Consideration was also postponed of the related question of introducing a reduced subscription for aged members.

Veterinary Report Forms.—Letters were received from the General Accident Corporation, the Co-operative Insurance Society, and the National Farmers' Union Mutual Insurance Society in connection with the Association's request for the adoption by these companies of the standard veterinary report form as agreed between the N.V.M.A. and the Livestock Offices Association (the central body of the tariff offices).

It was decided to consult Mr. D. Campbell on the points raised by these non-tariff companies and to act on his advice.

Fur-bearing Animals.—A letter was read from the Fur Farmers' Association of Great Britain with reference to the proposed establishment by that body of a veterinary information bureau for the assistance of its members.

It was decided to endeavour to arrange a meeting with the Fur Farmers' Association to discuss this proposal, and also problems of mutual concern, and that in the event of this suggestion being accepted, Professor Boddie, Professor Dalling, Dr. Hare, Major Kirk and Professor Miller should represent the Committee.

Identification of Animals.—It was decided to refer to the Special Committee on Tuberculin Tests, the report of a Special Committee of the Royal College of Veterinary Surgeons on the "Identification of animals for the purpose of certification."

Medical and Surgical Inventions.—The Committee received a letter from the National Federation of Professional Workers on the suggested creation of a Patent Office for medical and surgical inventions.

Fourth International Congress of Comparative Pathology.—An invitation was received to appoint a delegate to this Congress, to be held in Rome in May, 1939, but it was resolved to make no recommendation to the Council.

Libel Insurance.—It was reported that after consultation with the Association's solicitor, the policy of insurance against libel risks, as amended by the addition of a further clause, had been renewed for the period 1939-40.

Financial Statement.—The Hon. Treasurer presented his report on the Financial Statement for January, 1939, which showed that at the end of that month there was a balance at bank of £2,455 9s. 9d., while liabilities totalling £370 3s. 6d. had then to be discharged.

The Treasurer's report was adopted and authority given for the payment of outstanding bills.

Central Register of Veterinary Surgeons for National Emergencies.—The Committee had before them a report of a meeting held earlier in the day between the National Emergency Committee and representatives of the National Service Department of the Ministry of Labour with regard to a communication received through the Royal College of Veterinary Surgeons.

In the light of this report, the Committee were of the opinion that the compilation of such a register could best be undertaken by the Registrar of the Royal College of Veterinary Surgeons. It was consequently agreed that a communication to this effect should be sent to the National Service Department, Ministry of Labour.

P.D.S.A.—The Committee received a report upon negotiations which had taken place between the People's Dispensary for Sick Animals and a sub-committee of the R.C.V.S. and in the ensuing discussion the Committee had the assistance of Mr. Bridges-Webb, General Secretary of the P.D.S.A. who was present at the invitation of the Chairman.

It was eventually agreed that the Hon. Secretary and Professor Mitchell, who besides being members of this committee had assisted in putting before the R.S.P.C.A. suggested alterations for improving the arrangements under which members of the profession are co-operating with that Society in providing free treatment of sick animals of the poor, should continue the discussion with Mr. Bridges-Webb; that the Organising Committee should be called to meet on March 6th at 11 a.m. to receive a report thereon, and that if necessary, the views of the Committee should then be laid before a special meeting of the Council.

Dr. HARE enquired, with reference to the Central Register of Veterinary Surgeons for National Emergencies, if the Council were to understand that the report unanimously adopted at the last Council meeting had been shelved? And if so, by whose authority?

The PRESIDENT replied that the matter had not been dropped but that nothing had taken place in the meantime about it because the Association was busy about air raid precautions and the question of the Register asked for by the Ministry of Labour.

Dr. HARE expressed his profound regret that the initiative had been allowed to pass from their hands to the Ministry of Labour. He hoped it had been sufficiently impressed upon members of Council at the meeting on January 3rd that it was most desirable that their colleagues in practice in each locality should be able to undertake work of national importance in their locality, or elsewhere if they thought fit, knowing that their practices would be protected in the event of their absence on whole-time service. Colonel Greenfield and others had spoken very strongly on that point, and the Committee that was appointed to deal with those emergency matters drew up a scheme for the protection of practices of absentee practitioners. The whole basis of that work had been entirely destroyed by the crass stupidity of those responsible for listening to the suggestion of the Ministry of Labour that they would attend to the Register and do it through the R.C.V.S. The Council were now being treated like a lot of schoolchildren. It did not matter whether their Permanent Secretary's staff organised the Register or whether Dr. Bullock at 10, Red Lion Square did it—that was a mere administrative matter of convenience. But this Council on January 3rd unanimously had determined that they, as a profession, should organise themselves through their N.V.M.A. divisions in each county and in each borough, to undertake any emergency duties, for which they might be called upon. He gathered from the present report that the Central Emergency Committee had been dropped, and that a new Committee was working on a handbook of advice to farmers and stockowners. But was this new Committee considering the protection of their colleagues' practices? What had that got to do with the Ministry of Labour?—Nothing. The President had been kind enough to ask him (Dr. Hare) to be Chairman of the original committee, and this committee had endeavoured so to organise the profession through their own N.V.M.A. divisions that if a crisis came the general practitioners could go on to Government service knowing that their practices would be guaranteed by the Association.

Mr. STEELE-BODGER said that at the last Council meeting it was decided to leave the matter in abeyance until they had a decision from the Ministry of Labour as to the truth or otherwise of the rumour that no veterinary surgeon over 25 years of age would be allowed to offer his services. One had, of course, the greatest sympathy with Dr. Hare's point of view.

Dr. HARE observed that that was rejected at the last Council meeting. The position was that the War Office had made it clear that veterinary surgeons could volunteer for various National Services, but that in the event of war the War Office had a lien on a certain number of young graduates.

Mr. STEELE-BODGER replied that that was his impression: that the matter be left at that. Nobody could have put more or better work into the organisation for the protection of practices of absentee practitioners than did Dr. Hare, and nobody could have succeeded as he did in the short time at his disposal in getting matters so far forward: he thought they were entitled to information as to what was being done in this important matter.

The PRESIDENT stated that he took full responsibility for the delay, because he stopped the further development of it as he thought it would lead to confusion. According to the Ministry of Labour veterinary surgeons were to be exempt as serving a "reserved occupation." Then the question came up of the registration of members of the profession, and this Association was to take that up with the Royal College. It was pointed out that the members of the Association were only a percentage of the members of the profession, but that all were members of the R.C.V.S. The papers were going out that week from the College and when they were returned the position would be clarified and easily worked. In addition, the A.R.P. Committee of the "National" had been working in conjunction with a Committee at the Home Office. When they finished their booklets they would be available to everyone in the Association. They had been very busy doing good work. Although he took responsibility for the delay he did not take the responsibility of admitting that he was wrong. They were likely to get into a lot of confusion which would now be easily clarified and he hoped Dr. Hare, whom they were glad to see present after his recent illness, would agree that the delay had been necessary.

Major KIRK said there surely was some misconception. The Central Register circulated by the Royal College was for the purpose of collecting information as to what branch of practice, or in what manner a man could best give his services. But the scheme outlined by the Committee, of which Dr. Hare was Chairman, was another matter altogether and was designed to protect practices in the absence of the principals. That scheme was surely still available.

Mr. STEELE-BODGER replied that that could not be entirely another matter but he thought that if they had their Register they would know how many practices they were likely to have to protect.

The motion for the reception and adoption of the report of the Finance and General Purposes Committee was now moved by Dr. WOOLDRIDGE, seconded by Mr. BYWATER, and carried unanimously.

Editorial Committee.

Mr. STEELE-BODGER (Chairman) read the report of this Committee as follows and moved its reception and adoption, Major KIRK seconding the motion, which was carried without discussion :—

Early in the quarter under review, your Editorial Committee completed the publication of the results of its examination of the Inter-departmental Committee's Report on Veterinary Education in Great Britain, and reverted to its normal practice of meeting fortnightly. More recently, however, meetings of your Committee have again been prolonged and pressure upon space in the *Record* has increased since the announcement of the rapprochement between the Royal College of Veterinary Surgeons and the People's Dispensary for Sick Animals. Reference to the desire of the profession to assist, wherever possible, properly organised animal charities has been made in the leader columns of the *Record*, and an animated exchange of personal views is now in progress in the correspondence columns.

Early in January articles and editorials on the subjects of the potency of tuberculin and the practical application of the tuberculin test aroused considerable interest, which was again supported in the correspondence columns. Much material upon matters of major interest to the profession appears in the columns of the *Record*, and when committees of the National Veterinary Medical Association have them under consideration, printer's pulls are to be supplied to the members of any relevant committee at the request of its chairman.

The forthcoming elections to Council, R.C.V.S., afforded the opportunity of drawing the attention of candidates and electors alike to the functions of that Council and the requisite restriction in the scope of election addresses published in the *Veterinary Record*.

Publication of recollections of two members of the "National" meeting in Dublin in 1900 aroused considerable interest and your Committee expresses the hope that others having vivid memories of past occasions of moment in the history of the Association or of the profession may be encouraged to forward their reminiscences to the editorial office.

All sections of the journal have been well filled and the number of clinical communications received has shown a welcome increase.

More space has been devoted to reviews of veterinary and allied works, and in this connection your Editorial Committee would be glad if members having knowledge of newly issued publications likely to be of interest to readers of the journal would suggest to the editorial office that review copies be obtained.

Reports of Special Committees

Consultative Committee.

The text of this report, which had been circulated to members, was as follows :—

Two meetings of the Consultative Committee have been held during the past quarter.

The following are among the matters which came under consideration:—

Post-Attestation Tests under the "Attested" Herds Scheme.—The Committee regarded as satisfactory the procedure proposed to be followed by the Ministry where a practitioner living at a distance from an "attested" herd is not prepared to accept a reduced mileage for the necessary testing visits. At the same time it was agreed to remind the Ministry that as an incentive to the practitioner to encourage his clients to become attested, they had promised that the practitioner who brought the herd up to attestation would be allowed to carry out the retesting.

Assistants or Locums deputising for Panel Inspectors.—It was learned that the Ministry could not adopt the Committee's suggestion that in cases where a practitioner is taken suddenly ill, or has met with an accident which prevents him from practising, his assistant or locum tenens should be allowed to carry out panel work pending the principal's recovery. The attitude of the Ministry was that when a panel inspector is not available for duty, from whatever cause, the divisional inspector must allocate any work arising during the period of absence to another inspector or inspectors as he thinks fit.

After further discussion of this matter, it was decided to put before the Ministry the suggestion that when an assistant has been in a practice for two or three years, he should be recognised by the Ministry as capable of undertaking panel work.

Official Tuberculin Testing.—In regard to the suggestion of the Ministry that if a practitioner has failed to receive the usual notification of an official tuberculin test he should communicate with the divisional inspector, it was the feeling of the Committee that a better course would be for the Ministry to cause a circular to be issued to divisional inspectors reminding them of their obligation to the practitioner.

Position of Practitioners, not being on either Panel "A" or Panel "B," in regard to the Certification of Animals for Export.—The observations of the Ministry were received and it was agreed to take advantage of their offer to discuss this matter with the Committee at the next convenient opportunity.

The Position in Zetland.—A letter was read from the Ministry, intimating that as a result of further consideration of the position in Zetland, they had decided to withdraw their whole-time officer as soon as an appointment was made by the County Council under the Veterinary Service Scheme. The letter also explained the nature and extent of the work which in consequence would come within the scope of the veterinary practitioner to be appointed.

The Committee received this decision with approval.

REPORT OF POULTRY TECHNICAL COMMITTEE.—The attention of the Committee was drawn to a motion moved by Dr. Hare at the January meeting of Council requesting that the Association's declared policy be pursued to the utmost in

connection with the report of the Poultry Technical Committee.

In this connection, consideration was given to the views of Professor Dalling, Chairman of the Association's Advisory Committee on Poultry Diseases, submitted in writing.

After discussion, it was resolved:—

(i) To address letters to the Minister of Agriculture and the Secretary of State for Scotland, on lines suggested by Professor Dalling, again pressing for veterinary representation on the proposed Poultry (Stock Improvement) Commission and on each of the proposed Advisory Councils for England and Wales, and for Scotland.

(ii) To send copies of these letters to the Agricultural Research Council with a request for their support.

(iii) To recommend to the Council that a practitioner be added to the Association's Advisory Committee on Poultry Diseases, and that this practitioner-member be Mr. J. R. Barker.

Lectures to Farmers and Others.—It was agreed to ask the Ministry of Agriculture to issue to veterinary investigation officers an instruction that a courtesy notice should be sent to local practitioners whenever lectures are to be given in their districts by veterinary investigation officers to farmers and others.

Section 4, Milk and Dairies (Consolidation) Act, 1915.—The view was expressed that where a case was to be enquired into by a whole-time officer under Section 4 of the Milk and Dairies (Consolidation) Act, and the previous inspection of the herd had been done by a part-time inspector, the part-time inspector, too, should be notified of the arrangements for the intended inspection when notice is sent to the farmer. It was resolved to recommend to the Ministry accordingly.

It was also felt that inspections under this section of the Milk and Dairies (Consolidation) Act should be paid for on a basis at least as favourable as for the inspection of accredited herds, as the work involved is invariably greater.

Fees for Testing in Isolated Districts.—Consideration has been given to communications from two different sources in regard to fees for tuberculin testing in areas with a sparse cattle population.

"Hardship" Cases.—The Committee has made representations to the Ministry in regard to the salary of one whole-time veterinary officer; appointment to Panel "A" or "B" or restoration of markets to 14 practitioners; and the allocation of part-time work to one municipal veterinary officer.

Review of Arrangements made by the Ministry for Carrying on the Centralised Service.—A letter was addressed to the Ministry expressing the hope that the Association would be given the opportunity of discussing with them the working of the arrangements during the first year as well as any modifications which the Ministry might have under consideration.

A reply has been received stating that the Ministry will be happy to discuss these matters with the Committee, and it is proposed to have the meeting during the second half of April.

The President having declared the report open for discussion, Dr. Hare asked with reference to the report of the Poultry Technical Committee, if they might have read out to them the views of Professor Dalling (Chairman of the Association's Committee on Poultry Diseases), to which reference was made in the report in regard to the policy to be pursued relative to the Poultry Technical Committee's report? In April, 1938, Council unanimously adopted certain resolutions on the Report of the Poultry Technical Committee. The first resolution recommended that there should be an area inspectorate, each area to be in charge of a full-time veterinary officer for the inspection of poultry both in health and disease; and that each area veterinary officer should have under his direction a panel of veterinary practitioners (part-time) and a staff of lay inspectors. As the Council would recall, the Technical Committee proposed to put the whole inspection of poultry in health and disease in this country in the hands of laymen. This Council rejected that and resolved that the inspectorate should be a veterinary inspectorate.

The second resolution drew the attention of the Ministers concerned to the desirability of full use being made of the existing laboratories, including privately owned laboratories, under veterinary supervision, which specialised in poultry disease work in connection with *post-mortem* examinations and the various biological and other tests appertaining to the control of poultry disease.

The third resolution expressed the hope that the Association would be invited to nominate one or more of its members to serve on the proposed Poultry (Stock Improvement) Commission and on each of the proposed Advisory Councils (for England and Wales and for Scotland).

These resolutions were addressed to the Minister of Agriculture and to the Secretary of State for Scotland. Since then one was given to understand that certain difficulties with the Ministry had been encountered by the Consultative Committee; but they did not know what was going on behind the scenes. He was very anxious to know what was going on because all they were told in the report now before them was that Professor Dalling had submitted certain views in writing.

The President said that the Committee had considered the resolutions passed by the Council and the result of its consideration was given in the report now before the meeting. The copy of Professor Dalling's observations was available at Gordon Square if Dr. Hare wished to see it, and the conclusions arrived at by the Committee were as given in paragraphs (1), (2) and (3) of this section of the report.

Dr. Hare made the rejoinder that he knew very well that the Ministry were disregarding the Association's resolutions. Was the profession going to stand for a lay inspectorate? Why should they see veterinary laboratories which had been pioneering in that work rejected because the Ministry of Agriculture desired to

secure a monopoly in this veterinary poultry pathological work for its own laboratory ?

Mr. STEELE-BODGER said that as the result of Dr. Hare's suggestion at the last meeting of Council that a practitioner should be added to the Association's Advisory Committee on Poultry Diseases, Mr. Barker was added. He could assure Dr. Hare that they did fight for the practitioner with the Ministry.

Dr. HARE stated that he thought it was about time they put on the Council's Poultry Committee someone who knew the facts and could speak with authority to the Ministry and would not compromise the interests of the profession. The men who had been on the Committee were earnest, well-intentioned workers, but they either did not know the present politics of the poultry industry or they were afraid of fighting the Ministry. He condemned the way in which the whole matter had been handled. The Poultry Industry Bill was now before Parliament and the private practitioner again had been sold.

Major KIRK asked if it was not a fact that since the appointment of Mr. Barker the Committee had not met ? and added that in any case it was now too late to raise any question as the whole matter was already settled.

The HON. SECRETARY said that he thought it was obvious that the Association had not given up trying to get its policy adopted, but they were not omnipotent yet. Recently they had had more of their own way than they did years ago, but they could not be expected to succeed every time. The Ministry had not seen fit to accept their point of view in spite of the fact that they had done their best. The next stage would come when the Bill was before Parliament when it might be possible to get modifications then. That was where the Association stood—they had up till now endeavoured, without success, to get their policy adopted, but that did not mean that nothing further would be done. They had got to wait for the next suitable opportunity for pressing it.

Dr. HARE enquired why the Executive did not fight the Ministry through the columns of the *Veterinary Record*, and why they did not put people on their Committee who had the facts at their finger tips and possessed courage.

The PRESIDENT reminded Dr. Hare that the Consultative Committee had been working very hard in the matter and Mr. Barker had been put on the Poultry Committee with a view to strengthening it from the point of view of the practitioner.

Mr. BYWATER pointed out that the Council elected the Committees, and Dr. Hare could, if he wished, move that the personnel of the Committee be changed.

The PRESIDENT stated that the position was that they had tried, but they had failed. They had been successful in many cases, but not 100 per cent.

The motion for the reception and adoption of the report was proposed by Mr. MOTTON, seconded by Mr. BARKER and carried.

National Emergency Committee.

This report, which had been circulated to members, was received and adopted without discussion on the motion of Mr. BYWATER, seconded by Mr. ANTHONY.

A meeting of the National Emergency Committee was held at 36, Gordon Square, on February 21st, 1939, with Major Brennan DeVine (President) in the Chair.

The minutes of the previous meeting, having been circulated, were taken as read and approved.

AIR-RAID PRECAUTIONS FOR ANIMALS.—A report was presented of the progress made towards providing the Air Raid Precautions Department of the Home Office with the information they required for publication in the proposed booklet of advice to owners of animals, and as to the organisation of an A.R.P. (Animals) Service.

In connection with the former, it was decided to pass on to the Home Office suggestions on the restraint of horses in public thoroughfares received in writing from Colonel Stordy.

VOLUNTARY REGISTER OF VETERINARY SURGEON'S FOR NATIONAL EMERGENCIES.—Consideration was given to a communication from the National Service Department of the Ministry of Labour, received through the Royal College of Veterinary Surgeons, seeking assistance in the compilation of a register of veterinary surgeons willing to serve on appropriate work in the event of war.

After discussion, it was decided to lay the correspondence before the Finance and General Purposes Committee, together with the further information obtained from the two representatives of the Ministry of Labour who had attended the meeting at the invitation of the President.

Advisory Committee on Biological Products.

In moving the reception and adoption of this report in the absence of Professor Dalling (Chairman), Dr. STABLEFORTH outlined its main features, stating in the course of his observations that the Committee had secured evidence regarding the unsuitability of certain biological products, *e.g.*, those used in combating lamb dysentery, had scrutinised the numerous biological products on sale in Great Britain, classified them into those which could be standardised or tested for potency in some way and those which it was important to test (the value of this latter group was, to say the least, doubtful) and considered the methods of test in some detail. They recommended that the report, if adopted, should be sent to the Ministry of Agriculture with a view to further action under the Diseases of Animals Act, 1935 (part 2).

The report was as follows :—

At the Annual Congress, 1937, the following resolution was passed by the Section of Experimental Pathology:—

> "Whereas it has been clearly shown that some biological products at present offered for use in the control of animal diseases are devoid of essential elements, this meeting is of opinion that the Association should urge the further extention and operation of Part 2 of the Diseases of Animals Act (1935)."

The resolution was accepted by the Council N.V.M.A. and a special Advisory Committee on Biological Products was set up with the above resolution as its terms of reference. The members of the Committee were Professor T. Dalling, Dr. W. S. Gordon, Mr. W. J. Ironside, Dr. R. F. Montgomerie and Dr. A. W. Stableforth.

Your Advisory Committee on Biological Products met for the first time on October 21st, 1937, and Professor T. Dalling was elected Chairman.

Careful consideration has been given to the value of the biological products obtainable in this country for use in the control of animal diseases. During its enquiry your Committee obtained evidence that some such products were not submitted to extensive tests for potency or standardisation prior to issue, probably because in some cases at least, no suitable tests have been devised. Further, when such tests were carried out, the same type of test and the same standards were not used in each laboratory with the result that biological products used for similar purposes were of different potencies. It was ascertained that, in some instances, biological products were labelled for use in specific diseases but that laboratory and field tests had shown clearly that they had no apparent value in the control of the disease in question. An outstanding example is lamb dysentery serum. The evidence that certain brands of this serum had little or no specific protective value had been clearly demonstrated by laboratory workers, whose evidence was available to your Committee. Further, results in the field, obtained from various veterinary investigation officers, amply confirmed the laboratory findings. The variation in the potency of tuberculin is another example; your Committee, however, did not investigate this subject fully as it comes under the purview of your Tuberculin Tests Committee.

Your Committee also had evidence before it that, in addition to products having little or no specific protective or curative value, there have been some which have actually been harmful to the animals on which they have been used. It is not proposed, in this report, to refer to specific instances of such occurrences but the necessary records are available and can be produced, should the occasion arise.

It is, therefore, quite evident to your Committee that there is an urgent need for the standardisation and potency testing of biological products for use in controlling animal diseases and, further, that some guarantee concerning their suitability for use on animals is necessary.

Your Committee prepared a list of the biological products for animal use obtainable in this country and, following its scrutiny, has classified them as (*a*) products for which an official standard is now available (a standard adopted for similar products for use in human medicine) and which may be used in their standardisation, and (*b*) products for which, in your Committee's opinion, a standard could be prepared now. (See Appendices I and II.) Concerning other products, not referred to in the appendices, your Committee finds it is not in a position to express an opinion concerning whether or not they are capable of being standardised, though it is very doubtful whether some of them can be standardised or tested for potency.

Your Committee is well aware that only by the standardisation of biological products on an international basis can uniformity be obtained. Your Committee, however, strongly recommends that this should not interfere with, nor cause delay in, the setting up of national standards and the potency testing of biological products for use on animals in this country.

Your Committee considered methods for the standardisation of biological products and for testing their potency, and prepared a general scheme. While the Committee refrains from making any recommendations concerning methods which could be adopted, its scheme is available, should it be required.

Your Committee makes no recommendation concerning the authority or department which should undertake standardisation and tests for potency but desires to state that if, and when, this has been officially decided, the records of your Committee can, if the Council agrees, be placed at the disposal of the body concerned.

Your Committee suggests, if the Council accepts this report, that copies be sent to the Ministry of Agriculture and Fisheries and to the Agricultural Research Council for their information. Your Committee also suggests that, at the same time, a request be made for an interview with these bodies in order that further evidence may be given in support of the opinion of your Committee that standardisation and potency testing are urgently required.

Your Committee considers that the work entrusted to it is now completed and that further meetings are unnecessary. It is felt, however, that the Committee should remain in being and that the Chairman be empowered, should the occasion arise, to call a meeting of its members.

. . . . . .

Appendix I

Biological Products for which an Official Standard is now available:—

Tetanus Antitoxin.
Cl. welchii (type A) Antitoxin.
Cl. septique Antitoxin.
Cl. oedematiens Antitoxin.
Cl. histolyticus Antitoxin.
Staphylococcus(α) Antitoxin.
Old Tuberculin.

Appendix II

(a) *Biological Products for which Standards could be devised now:—*

Cl. chauvoei (Blackleg) Antiserum.
Lamb Dysentery Antiserum.
Cl. welchii (type D) Antiserum.
B. bronchisepticus Antiserum.
Swine Erysipelas Antiserum.
Canine Distemper Antiserum.
Leptospirosis Antiserum.
Anthrax Antiserum.
Synthetic Medium Tuberculin.
Synthetic Medium Avian Tuberculin.
Johnin.
B.W.D. (*S. pullorum*) Antigen.
Br. abortus Antigen.
Swine Fever Antiserum.
Mallein.
Pustular Dermatitis Antiserum.
Feline Distemper Antiserum.
Fowl Cholera Antiserum.
Haemorrhagic Septicaemia Antiserum.

(b) *Biological Products for which Tests for Potency could be devised now*:—

Blackleg Vaccine.
B. bronchisepticus Vaccine.
Swine Erysipelas Vaccine.
Canine Distemper Prophylactic Products.
Leptospirosis Vaccine.
Fowl Pox Vaccine.
Feline Enteritis Vaccine.
Louping-ill Vaccine.
Anthrax Vaccine.
Braxy Vaccine.
Haemorrhagic Septicaemia Vaccine.
Fowl Cholera Vaccine.
Tetanus Toxoid.
Staphylococcal Toxoid.
Fowl Typhoid Vaccine.
Feline Distemper Vaccine.

Dr. HARE asked Dr. Stableforth if the Committee to determine methods of standardisation and potency was to consist solely of whole-time Government employees, or to be a Committee on which private veterinary practice was adequately represented ?

Dr. STABLEFORTH replied that presumably the standardisation would have to be carried out by a body appointed by Government. He thought that they could expect that opportunities for full veterinary representation on such a body would be afforded ; and that the major portion of the work would be carried out by members of the profession with the required experience of the procedures involved.

Special Committee on Tuberculin Tests.

Mr. STEELE-BODGER moved the reception and adoption of the following report, which had been circulated to the Council, Dr. WOOLDRIDGE seconding the motion :—

The Committee was appointed, at the suggestion of the Finance and General Purposes and Veterinary Officers' and Public Health Committees, by resolution of the Council dated October 4th, 1938, "To investigate the technique, procedure and interpretations of the various tuberculin tests, and to consider other related matters, including the wording of tuberculin test certificates."

The following members agreed to serve:—

Messrs. R. F. Montgomerie (Chairman), J. R. Barker, H. W. Steele-Bodger, T. Dalling, H. Gillmor, R. E. Glover and T. Roger Thomas, together with the officers of the Association.

Your Committee appreciated that with the introduction of the State Service the questions they were to investigate had assumed a new aspect. Previously tuberculin testing had largely been a matter in which the practitioner bore his normal relationship to his clients. Now, much of the tuberculin testing is carried out on behalf of the Ministry of Agriculture. The principal effects of this change, so far as your Committee is concerned, are that the Ministry of Agriculture specify the tuberculin test to be employed, lay down instructions for its conduct, and issue the tuberculin to be used in certain tests under the attested herd scheme and for tuberculin-tested herds.

On the other hand, the Agricultural Research Council and Medical Research Council, through the Joint Tuberculosis Committee, finance and supervise research work on subjects related to tuberculin and its application in the field and advise the Ministries of Health and Agriculture on technical matters.

In these circumstances the members have, from the outset, doubted if your Committee could perform the full functions of the terms of reference. Despite the importance to the profession of the subjects to be considered, there existed a feeling that any recommendation of the Committee could have little effect unless it coincided with the view of the Ministry on the one hand and was acceptable to the Joint Tuberculosis Committee on the other. Your Committee could not initiate or undertake detailed investigation of any major question: it recognised this as the function of the Joint Tuberculosis Committee which, with its own resources and those of the Ministry, is admirably placed to instigate and supervise research work.

Your Committee therefore conceived it proper that its consideration be directed towards the expression of opinions based on evidence, which opinions your Council, if it so desired, might place before the Ministry and/or the Joint Committee.

Your Committee have had the advantage of a consultation with Mr. D. A. E. Cabot, Chief Veterinary Officer of the Ministry of Agriculture, and Major G. W. Dunkin, a joint secretary of the Joint Tuberculosis Committee.

Your Committee decided in the first place to consider the double intradermal test only and the following sub-headings were adopted to guide the deliberations.

(*a*) *Types of Tuberculin used.*—Your Committee agreed that tuberculin produced by growing the tubercle bacilli on a synthetic medium was preferable to "old" tuberculin. After full discussion it was resolved that:—

> "In the opinion of this Committee further detailed research work on the methods of preparing and of concentrating tuberculin prepared in a synthetic medium and on the strains of tubercle bacilli which may be used for its preparation is urgently necessary."

(*b*) *Standardisation and Potency.*—Consideration was given to these questions. Mr. Glover prepared a memorandum which is attached as an appendix to this report. It illustrates the existing position, in which there is no nationally or internationally accepted standard for veterinary tuberculin. It is, therefore, impossible to compare results obtained and opinions expressed by one foreign observer with those of another or with those emanating from British or Colonial observers. Although there exists an International Standard for tuberculin for human use, suggestions put forward to place veterinary tuberculin on the same footing have not matured. Your Committee feels strongly that immediate steps should be taken to obtain some standard which would be internationally accepted. The following resolution was passed:—

> "In view of the progress which has been made in preparing an international standard tuberculin in synthetic medium for human use, steps should be taken to determine whether the same standard would be suitable for the assay of veterinary tuberculins.
>
> "If this preparation is found to be unacceptable, the desirability of producing a standard synthetic medium tuberculin should be strongly urged upon the appropriate authorities. The ultimate aim is the

elaboration of a standard veterinary tuberculin which will meet with international approval."

It must be appreciated that although a standard has been adopted for human tuberculin, tuberculin is not used at that potency (*i.e.*, undiluted) in testing man. A variety of dilutions is used, commencing at a very low concentration. The position in the bovine world is entirely different and, in contrast, there is every reason for fixing not only a standard with which other tuberculins may be compared but also of determining the potency at which tuberculin had best be employed in any particular type of test. The position in Great Britain is that any producer or importer can issue veterinary tuberculin unrelated to any standard and at any potency he may select. Several veterinary tuberculins are on sale which bear little potency relationship and it is known that some veterinary surgeons employ one brand in preference to another because they believe its potency is of a different order. Your Committee know that the matter has received official consideration, for on page 222 of the report of the Agricultural Research Council for the period October, 1935 to September, 1937, it is recorded: "The Tuberculin Sub-committee at their meeting on March 27th, 1936, received through the Joint Committee a letter from the Ministry of Agriculture and Fisheries stating that the Ministry proposed to exercise powers under Part II (Regulation of Manufacture, etc., of Veterinary Therapeutic Substances) of the Diseases of Animals Act, 1935, and to issue an Order laying down standards for tuberculin for testing cattle." In July, 1937, the Joint Committee sent a draft schedule of provisions applicable to tuberculin to the Ministry. In response to an enquiry addressed to the Agricultural Research Council on behalf of your Committee, the N.V.M.A. was informed by letter dated December 12th, 1938, that: "The Agricultural Research Council have under consideration the possibility of standardising several therapeutic substances used in veterinary practice, including tuberculin, and they are at present in communication with the Medical Research Council prior to discussion with the Ministry of Agriculture and Fisheries on this subject." A further reply has been promised when more definite information is available.

Your Committee has carefully reviewed the position and is impressed by the fact that there is no record of any full investigation with tuberculin produced in a synthetic medium on which there might be based a decision as to the potency most suitable for use in the double intradermal test. It appreciates that general experience and the progress made in establishing clean herds during the past ten years suggests that tuberculin at a suitable potency has been used. It was, however, largely through some lessening of confidence in tuberculin, gradually arising within the profession, that the proposal to form this Committee took shape. Recent articles and letters on the potency of tuberculin have focused attention on the need for further work to determine how best the product may be used in veterinary work.

Your Committee holds the view that, unless there exists some series of observations of which it is not aware, the potency at which tuberculin produced in a synthetic medium had best be used cannot be determined until further research is undertaken. It has, therefore, passed the following resolution:—

"Since there exists no substantial evidence, based on extensive and carefully conducted research, on which to form an opinion as to the potency at which tuberculin produced in a synthetic medium can best be used in the double intradermal test in cattle, this Committee urges that the investigation of this matter be regarded as an immediate national necessity."

(*c*) *Specificity of Tuberculin.*—Preliminary consideration has been given to the question of sensitivity to mammalian tuberculin which may arise through infection with organisms other than the bovine tubercle bacillus.

(*d*) *Technique and Interpretation.*—The appropriate section of the 1928 report of the Medical Council on "The Intradermal Tuberculin Test in Cattle" was taken as a basis for discussion. These matters are still under consideration.

(*e*) *Retesting.*—Consideration of this matter has been deferred pending the publication of articles at present in the Press.

(*f*) *Types of Tuberculin Test Certificates.*—Your Committee is of the opinion that the existing certificates in use for official purposes and those adopted by an earlier Committee of the N.V.M.A. are suitable.

(*g*) *Identification of Cattle.*—Your Committee is in complete agreement with the report recently adopted by the Royal College of Veterinary Surgeons, namely:—

"1. (*a*) That all animals which have been subjected to a diagnostic test, and for which a certificate is given, should be made permanently identifiable by means of a tattoo mark either in the ear or the gum, preferably along the long axis of the inner surface of the ear, unless they already bear satisfactory identification marks of a breed society, milk recording society, or other approved body.

(*b*) That the breed societies should be recommended to include a rule to this effect in their regulations.

2. That veterinary surgeons should be advised that no tuberculin test certificate or other certificate that an animal has passed a diagnostic test should be given unless:—

(*a*) The animal tested is permanently and properly identifiable by means of a satisfactory mark of a breed society, milk recording society, or other approved body, *or*

(*b*) The animal is properly tattooed before the certificate is given.

3. That the certificate should include as full a description as possible of the animal tested, *e.g.*, breed, sex, colour and age where known, also any marks, defects or peculiarities in the horns, ears or elsewhere.

4. That a copy of these recommendations be sent to the Ministry of Health, Ministry of Agriculture, the various breed societies and the County Councils Association, and to every member of the profession."

The possibility of obtaining a special tattoo mark which could be used by members of the profession as an aid to identification only was carefully considered but found impracticable. It was decided that further experience of the use of aluminium "paint," suggested by Mr. R. H. Smythe, of Camborne, should be obtained

by individuals who have opportunity to mark by tattoo animals with black ears.

(*f*) *Restriction of the Sale of Tuberculin.*—In view of the suspicion that tuberculin is still being used by unscrupulous individuals to defeat the true objects of testing it was resolved that:—

> "This Committee urges the N.V.M.A. to press in every possible direction that the sale of veterinary tuberculin be restricted to the veterinary profession."

(*i*) *Vaccination and its effect on Testing.*—This matter is still under consideration.

(*j*) *The Testing of Animals other than the Bovine Species.*—It has not yet been possible to consider this subject.

(*k*) *Miscellaneous.*—It was brought to the notice of the Committee that in some districts and at certain seasons, attack of the test site by flies might render difficult, even impossible, the reading of the test. There is some evidence that the trouble may be avoided by not clipping closely, by making a clip with scissors so that the site is covered by the adjacent hair or by the use of a suitable non-irritant fly repellant applied some little distance below the site.

In cattle with patches of unpigmented skin it is always advisable to choose a pigmented site in summer, for the clipping of the hair from a white area may lead to sunburn sufficient to interfere with the interpretation of the test.

Your Committee recommends that the resolutions contained in this interim report, if acceptable to the Council, be transmitted to the Ministry of Agriculture and Fisheries and to the Joint Tuberculosis Committee without delay and that they be accompanied by an expression of the Council's desire that your Committee co-operate with these bodies where possible.

Appendix

Preparation of Tuberculin

"Old" Tuberculin.

There have been few alterations in the method of preparation of old tuberculin originally laid down by Koch. The product is made from human or bovine strains of the tubercle bacillus grown on the surface of 5 per cent. glycerine broth at a temperature of from 37·5° C. to 39° C. for periods varying from six to twelve weeks. When growth is complete, the bottles are steamed for from one-half to two hours according to the amount of liquid they contain and the contents filtered.

For the subcutaneous test, this liquid may be immediately preserved with 0·5 per cent. phenol or other convenient agent; or it may be concentrated to one-tenth its volume, as described below, and then brought back to its original volume by the addition of nine parts of 0·5 per cent. phenol glycerine broth.

Concentrated tuberculin is prepared by the evaporation by heat of the dilute product to one-tenth its original volume. It is a viscid, dark brown liquid containing an unknown amount of glycerine. It may be employed without further treatment, or it may be filtered whilst hot in order to ensure a complete freedom from dead tubercle bacilli or other organisms; or it may be diluted to one-eighth, one-fifth or one-quarter of the original liquid.

Minor modifications have been introduced by manufacturers in different countries. These have been fully discussed by Calmette and de Potter. They point out that most institutes use a mixture of human and bovine strains, although those which are concerned mainly with the preparation of veterinary products may rely exclusively upon bovine strains. The medium originally devised by Koch, *viz.*, a slightly alkaline beef infusion containing 1 per cent. peptone and 4 to 5 per cent. glycerine, is still employed by many institutes. Many modifications have been suggested, however, such as the substitution of veal meat broth for horse meat broth, the addition of salts (sodium chloride, various phosphates, etc.), changes in the initial *p*H of the medium, and so on. Most workers incubate the cultures for from six to eight weeks, but the extremes of four weeks and 24 weeks have been reported from various sources.

It follows, therefore, that at the moment no definite method for the preparation of old tuberculin can be laid down; indeed, it is doubtful whether the process could be rigorously standardised. Even if it were unanimously agreed that a medium of a constant composition, certain strains of the tubercle bacillus, a definite period of incubation and so on, should be universally employed, the finished tuberculin as produced in different institutes or even in the same institute, would vary slightly in composition and possibly in potency. For example, it is quite impossible to produce successive batches of meat infusion, each of which exactly corresponds with its predecessor; moreover, the rate of growth of the organism will always present certain irregularities. This is of the utmost importance since the amount of the residual constituents of the medium (glycerine, etc.) depends upon rate and amount of growth of the organisms, factors which are subject to considerable variation, and the chemical composition of the finished product must, therefore, show corresponding differences.

Synthetic Medium Tuberculin.

Of recent years attention has been directed towards the feasibility of preparing a potent diagnostic agent in less complex media than meat infusion broth of unknown composition, with the ultimate aim of the isolation of a purified substance having all the attributes of tuberculin in respect of activity without the disadvantages of admixture with foreign proteins and other substances. It is now generally recognised that the active fraction is linked mainly with the protein components of tuberculin and can be separated in a state of relative purity by such methods as ultrafiltration and precipitation by ammonium sulphate, trichloracetic acid, etc. In order to obtain these specific substances in a purified form, it is necessary to propagate the organism in a medium devoid of other proteins. At the present time a number of simple synthetic media are available, most of which are composed of a solution of those inorganic salts which appear to be necessary to support the growth of the organism, together with one or more amino-acids as a source of nitrogen (asparagin fulfils this requirement), and glycerine. On media of this nature, the tubercle bacillus grows abundantly and produces a tuberculin of high potency.

The U.S. Bureau of Animal Industry's synthetic medium tuberculin termed "F" is obtained by growing a strain of the human type on a medium of this type for eight weeks. Cultures are then steamed for three hours, filtered and evaporated to one-fifth their original volume after the addition of about 1 per cent. phenol. They are subsequently diluted with an equal part of 1 per cent. phenol solution and filtered.

It may be pointed out that the B.A.I. synthetic medium tuberculin concentrated by heat, while it is free from any form of animal proteose, still

contains the unused constituents of the medium, plus products of growth of the tubercle bacillus which are not responsible for inducing the tuberculin reaction. If tuberculins are required which do not contain these constituents which, as far as we know, are quite unnecessary and may be undesirable, other means of processing tuberculin must be employed. Various methods have been elaborated but they all depend upon the separation of the protein fraction containing the active principle.

Much of the progress which has been made hinges on the investigations of Seibert and her colleagues. Using a medium similar to that of Henley and first devised by Long and Seibert, she has succeeded in preparing and studying a number of different fractions. Several preparations of different molecular weight have been examined but the most satisfactory is one named by Seibert "pure protein derivative" (P.P.D.) Briefly it is prepared by first evaporating filtered synthetic medium cultures by means of heat. The concentrate is then passed through a suitable collodion filter which retains the active principle but allows unused parts of the medium to pass through. The solution outside the membrane is then further purified by trichloracetic acid and is finally dried to a fine powder. When redissolved in a suitable substrate it is found that in a concentration of 5 mg. per cent. it has almost invariably a potency equal to international Standard tuberculin when tested intracutaneously on guinea-pigs. P.P.D. probably represents the purest form of the active principle which has yet been prepared. The methods used for its manufacture are rather complex and it is therefore more expensive than other forms of tuberculin which are not so highly purified. In the dry state it is extremely stable but it has the disadvantage that when brought into solution it tends to lose potency at a relatively high rate.

The active principle of tuberculin can be separated from synthetic media by other methods. One of the simplest is by means of ammonium sulphate and this salt has been used with success by a number of workers. The method adopted at Cambridge consists in the cultivation of a suitable strain on a simple synthetic medium similar in constitution to that of Long and Seibert, for eight to ten weeks. The culture is then steamed, filtered and the active principle separated by saturating the filtrate with ammonium sulphate. The precipitate is collected, redissolved in a glycerolated solution so that it is 20 times the concentration of the original fluid, passed through a bacterial candle and preserved with an appropriate amount of merthiolate. A tuberculin of this type has been used on a fairly large scale and seems to have given reasonably satisfactory results.

Standardisation and Potency of Tuberculin.

The mere fact that a certain batch of medium, whether glycerine, veal broth or a synthetic medium, has supported a good growth of tubercle bacillus, is no criterion that the "tuberculin" produced will be of adequate potency. It is essential that a biological test shall be applied in suitable animals in order to obtain exact evidence on this point. The evaluation of tuberculin can be considered from two aspects, *viz.*: (1) an estimation of the reaction induced in the tuberculous guinea-pig, which is extremely sensitive to tuberculin; and (2) an estimation of its value in the class of animal in which it is destined to be used which, in this case, is the bovine species. The ultimate aim of the two methods is the same, but it will be convenient to refer to the guinea-pig method as a "standardisation test" and the bovine method as a "potency test."

The application of a comparative test presupposes the existence of a "standard" tuberculin of known value and stability which is recognised by all workers and which will serve as a basis for exact comparison. Fortunately "old tuberculin" is a remarkably stable substance, and when maintained under suitable conditions retains its activity unimpaired for long periods.

The original "standard" tuberculin, which has been used on a wide scale for the assay of preparations of unknown strength, is known as the Frankfurt Standard, but it has recently been superseded by an International tuberculin which is maintained at the National Institute for Medical Research, London. Manufacturers of repute in this and certain other countries are accustomed to testing human tuberculins against one of these standards, and none is issued unless it conforms to certain predetermined values. As already mentioned, however, "old tuberculin" is a complex preparation containing numerous substances which play no part in eliciting the tuberculin reaction, and it is therefore not entirely satisfactory as a "standard," especially when it is desired to determine the potency of synthetic medium tuberculins.

The methods of standardisation in vogue at the present moment are (1) the subcutaneous test in the guinea-pig in which tuberculous animals are given predetermined amounts of tuberculin by the subcutaneous route in order to ascertain the minimum amount which will cause death; (2) the intradermal reaction in tuberculous guinea-pigs in which falling dilutions of standard and unknown tuberculins are injected side by side in order to compare the resulting reactions. Other means of testing tuberculin have been tried but they are of subsidiary value and need not be considered.

The question of the standardisation of unknown tuberculins was carefully surveyed by Calmette and de Potter in a report which they prepared for the League of Nations in 1926 and their main conclusions may be summarised in the following manner. Koch's method (subcutaneous injection of guinea-pigs) gives an approximate indication of the toxic power of the tuberculin for a tuberculous animal but it furnishes no evidence of its antigenic value. The intradermal inoculation of a sensitive animal gives more satisfactory results since it permits the simultaneous comparison of an unknown tuberculin with a standard in the same animal. It is important to note that this test does not allow a determination of the relative value of tuberculins for the different susceptible species. Two important principles can be extracted from these observations: (*a*) that there is no single method of test which will evaluate at the same time the toxic (lethal) properties and the dermal properties of tuberculin; and (*b*) the final test of value must be the species in which the tuberculin is going to be applied.

We know from the work of Dorset and his collaborators and other workers that the substance responsible for the intradermal reaction is carried down in the precipitate obtained by complete saturation of tuberculin with ammonium sulphate and that this factor does not induce a thermal reaction in tuberculous guinea-pigs; moreover, the residual fluid contains the

major part of the lethal factor which induces death in an allergic guinea-pig. In view of the trend to replace "O.T." by more purified tuberculins, this distinction between the two factors is of considerable importance. While there is no reason to believe that a synthetic medium tuberculin, concentrated by heat and fully active in respect of one of these components, would be deficient in the other, it may be suggested that appropriate tests ought to be applied for the standardisation of one or both of these factors, according to the use to which the tuberculin is to be put. Thus it would seem logical that tuberculins which are to be applied by the subcutaneous method should be shown to produce a typical rise in temperature in suitable test animals, while an intracutaneous test should be used for intradermal tuberculins, and an eye test for ophthalmic tuberculins.

In Great Britain so far as tuberculin for human use is concerned the intracutaneous tuberculin test described by Eagleton and Baxter is in common use. In this method the reactions induced by the intradermal inoculation of allergic guinea-pigs with serial doses of an unknown tuberculin are compared with similar amounts of a standard product. According to Okell and Parish the intradermal test is more exact than the subcutaneous method and a difference of 40 per cent. is always detectable in each direction. Dorset considered that no single method is sufficient for the exact determination of the diagnostic value of different tuberculins, but that each one in the hands of experienced workers can indicate gross differences in the value of the product and that the tuberculins can be classed as super-active, active or feeble.

From the point of view of the determination of the suitability of a tuberculin for use on the bovine animal the potency test devised by Buxton has much to commend it. The technique consists in the injection of different dilutions of each brand of tuberculin to be tested on the side of the neck of a reacting bovine animal. The quantities suggested are 0·1 c.c., 0·03 c.c., 0·01 c.c., and 0·005 c.c. Similar quantities of a standard tuberculin are injected at the same time so that a comparison can be made of the degree of reaction produced by the different samples. A tuberculin is regarded as being of sufficient potency when 0·01 c.c. is capable of producing a definite reaction when compared with a similar quantity of standard in the same animal. The important part of this test is the injection at the same time of a number of known negative animals. This is most essential since it is imperative to obtain satisfactory evidence that the tuberculins used in the field are completely free from any suggestion of inducing non-specific reactions in negative cattle.

At the present moment no single method is accepted universally for the standardisation of veterinary tuberculin. Every institute in every country has its own method and its own standard.

In 1934 the Bureau d'Office International des Epizooties drew up a short memorandum of which the following are the salient points: "The preparation of a standard tuberculin can be achieved only if the culture media, technique of preparation and the strain used are all standardised. The preparation of a standard tuberculin is not possible with the type of culture media which has been used in the past, *i.e.*, media containing peptone, etc. On the other hand, the use of synthetic formulae permits the preparation of media which are always comparable and may even be identical.

In regard to the different processes adopted in the preparation of tuberculin, there would appear to be no difficulty in devising methods which would be generally acceptable. This refers to the length of period of incubation, standardisation of the media and recovery of the tuberculin, etc. The employment of a single strain of tubercle bacilius for the preparation of tuberculin is regarded as eminently desirable. If, however, it is considered preferable to use more than one type they should be restricted to strains which have been very carefully classified. All of these strains ought to be maintained by one laboratory from which stocks would be sent to all institutes in which tuberculin is being prepared. If several strains are being used the tuberculins obtained from each one ought to be processed and mixed under conditions which have been previously determined.

In every case it is highly necessary to make comparative tests of tuberculins. Strictly comparable results depend upon the selection of a suitable test animal and the choice of the most appropriate method of inoculation. It may be suggested that the test ought to be applied in the species of animal in which the tuberculin is going to be used in the field. It is, therefore, cattle which should serve for the control of veterinary tuberculin. In addition, since the main object is to make a comparison between different tuberculins, it would seem that serial intradermal inoculations of animals which, as far as possible, are in the same state of allergy or, even better, on the same subject, constitute a method of choice."

Note.—Standard is used here in the sense that all tuberculins should be of approximately the same value as a basic tuberculin which is universally accepted as the test tuberculin against which unknown products are to be assayed. The underlying suggestion is that if one type of synthetic medium and one strain of the tubercle bacillus is used, and the period of incubation is regularised, the final product should always have the same tuberculin activity.

A further communication was promised based on the replies to a questionnaire which was to be sent to all parts of the world. The fact that no further report has been issued would almost seem to imply that the problem of the preparation and standardisation of tuberculin still bristles with difficulties and that a sufficient degree of unanimity has not yet been reached to warrant the publication of concrete proposals from this body. It is encouraging, however, that a lead in regard to human tuberculin has been given by the League of Nations which has laid down a standard which now seems to be universally recognised. There is hope, therefore, that a standard bovine tuberculin can be devised which would meet the requirements of most countries.

The Secretary now read a letter from the Secretary of the Scottish Branch, dated March 24th, embodying a resolution for their consideration :—

"At yesterday's Council meeting of the Scottish Branch the following resolution and remarks received from Mr. A. Gibson, Kirkcudbright, were considered.

"It was decided that Mr. Gibson's resolution and remarks should be forwarded to you in

order that you might submit them to the Special Committee dealing with this subject.

> "That this meeting considers that it is a matter of extreme urgency and importance that an immediate inquiry be instituted into the preparation and standardisation of intradermal tuberculin, and until such time as an inquiry has been completed the potency of all batches of tuberculin supplied should be made known.
>
> "My own feelings on the above matter are very strong. It is my experience that owing to the diverse results obtained using the batches of tuberculin recently issued, the confidence of the stockowner is being lost, and considerable harm is being done to the scheme for the eradication of tuberculosis. Also it is not infrequently the case that these diverse results and the inability to decide whether a result is positive or negative, are put down by the owner of the stock as due to the inefficiency of the practitioner. It has always seemed strange to me why a tuberculin of sufficient potency to produce satisfactory results with a single intradermal test could not be produced in this country, when it has met with such success in America."

The PRESIDENT said that that letter had been brought to the notice of the Council at the request of the Chairman of the Special Committee on Tuberculin Tests.

Mr. STEELE-BODGER moved that the letter be referred to the Special Committee on Tuberculin Tests for further consideration and any necessary action.

Mr. BARKER expressed some doubt as to whether it was sufficient to refer it back to the Special Committee. He knew that the Chairman would have liked more discussion on the interim report. They felt that they were being held back and held back for a particular purpose. That letter referred more particularly to that purpose. The preparation of tuberculin in this country was not the same, nor the way of interpreting and administering the test. The Committee were trying to arrive at a conclusion and it would help them if there was more discussion and more expression of opinion as to the extreme importance and urgency of doing something. He felt that they were being held up, not by the wishes of that Association, but by the wishes of outside bodies.

Dr. HARE said that on the question of tuberculin there was one matter to which he regretted that the Committee did not seem to have given much attention. Some of them who had a not inconsiderable experience of making tuberculin realised that there was a great disadvantage to the profession in having a monopoly. By allowing the Ministry of Agriculture, through the Royal Veterinary College, to monopolise the production and standardisation of tuberculin he thought they would be running a very great risk. He could speak from personal experience of knowing how very easily, despite the fact of constant attention, a culture could go off. Without going into technical details then, he was quite prepared in any scientific meeting, to challenge any bacteriologist who claimed that he was endowed with the omnipotence necessary to avoid all possible mistakes. He remembered when he was a young graduate that an efficient tuberculin was being made by a man of 40 years' experience—Sir John M'Fadyean. To-day, if they put it into the hands of the Ministry's laboratory at Weybridge, it was quite possible that a graduate of two years' experience only might be put in charge of making tuberculin. That he would regard as a national calamity. He wanted to see men of judgment and experience in different laboratories doing the work; not centre it in one laboratory as at present.

There was another point overlooked by these recommendations for the standardisation of tuberculin and the monopolisation of its manufacture, and that was that most veterinary practitioners were capable of judging the efficacy of tuberculin. He recalled to their recollection that Hugh Begg had built up one of the best services with Pasteur tuberculin, and he could not for the life of him accept any contention that Hugh Begg did not know his job. Yet there had been many suggestions made that Pasteur tuberculin was not a satisfactory product for the use of their colleagues in general practice. He claimed that the practitioner of experience was competent to judge of the efficacy of biological products and that he did not need the bacteriologists to "boss the show." The next stage in the monopoly would be the manufacture of the greater part of their pig products and then canine products. He deplored the monopoly-tendency, and declared it fundamentally unscientific: he did not consider that the Ministry of Agriculture were necessarily going to have men who would be proof against error and in whom the confidence of veterinary practitioners could be reposed.

Mr. CAMPBELL said that a rather disquieting state of affairs was disclosed by the statement that the work of the Committee was being hindered by an outside influence. He trusted that if that continued the Committee would boldly report to that Council exactly what was curbing its work and ask for powers from the Council to get ahead. They knew that the report of a previous Committee had been held up for a long time, but he hoped that nothing would be allowed to interfere with the usefulness of the present Committee. (Hear, hear.)

The PRESIDENT observed that he thought it was well known amongst the members that the Medical Research Council had a Committee which had been dealing with investigations into tuberculin, while the Agricultural Research Council had a Committee and the Ministry of Agriculture also were concerned with tuberculin testing at the present time: those were three

important bodies in the country in this connection, but the "National" Committee had not hitherto had any certain information from them, or indeed any help from them. He naturally hoped that they would get such help in the future. The Committee had done a lot of work since they started; they had dealt with the double intradermal tuberculin test and possibly they would get on to the single intradermal test. It was presumable that they would get on more rapidly if they secured evidence from other countries.

Advisory Committee on Overseas Services.

This report was read as follows by Dr. WOOLDRIDGE, Mr. HEWER seconding his motion for its reception and adoption, which was carried without discussion :—

A meeting of the Advisory Committee on Oversea Services was held at 36, Gordon Square, W.C.1, on Friday, March 10th, 1939, with Dr. W. R. Wooldridge in the Chair. The Committee had the assistance of Colonel R. J. Stordy, Major H. Brassey-Edwards and Mr. W. F. Poulton.

The minutes of the previous meeting, having been circulated, were taken as read and approved.

Correspondence.—Communications were received from the Corresponding Secretary for Northern Rhodesia and their contents noted with approval.

INFORMAL DISCUSSIONS WITH THE COLONIAL OFFICE.—It was learned from a verbal report made by the Chairman that he and Professor Miller had taken part in further informal talks at the Colonial Office concerning the unfilled post of Veterinary Adviser and the unsatisfactory conditions of service in the Colonial Veterinary Service and that they had also discussed these matters informally with the Parliamentary Under-Secretary of State for the Colonies.

PROPOSED DEPUTATION TO THE SECRETARY OF STATE FOR THE COLONIES.—In this connection the following written answer given by the Colonial Secretary in the House of Commons on March 1st to a question put by Mr. Markham was read.

> Mr. MARKHAM asked the Secretary of State for the Colonies whether, in accordance with the recommendation of the Lovat Committee, an adviser in animal health will be appointed to the Colonial Office to assist colonial veterinary services.
>
> Mr. M. MACDONALD: An adviser on animal health was appointed in 1930. On his death in 1932 it was decided in view of the financial position and of other considerations not to appoint a successor. Since then the matter has been reviewed from time to time and has recently engaged my personal attention. I recognise that in some ways there would be advantage in the revival of the post, but I am not satisfied that the circumstances are such as would justify me in making an appointment at the present moment.
>
> I understand, however, that the National Veterinary Medical Association wish to send a deputation to discuss this question with me, and I shall be prepared to receive such a deputation at an early date.

A full draft statement of the Association's case, including the recommendations to be put before the Minister by the deputation, was then submitted.

This draft was discussed and it was agreed to adopt a number of suggested modifications.

On reconsideration, it was decided that the members of the deputation should be the President of the Association, the Chairman of the Advisory Committee (Dr. Wooldridge), Professor Miller, Mr. John Smith and either Mr. W. F. Poulton or Major H. Brassey-Edwards.

Appointments in India.—Consideration was postponed until the next meeting of the question whether the conditions of appointments in India call for any action by the Committee.

Provisional Committee, N.V.M.A. Congress, 1939, at Great Yarmouth.

The SECRETARY, for the information of the Council, summarised the contents of the following progress report from the Provisional Committee of the Great Yarmouth Congress of the N.V.M.A. :—

Satisfactory progress has been made and the Provisional Programme which accompanies this report indicates the present position.

Hotel Accommodation.—All the principal hotels in the district have been approached and a list of those which can offer accommodation to delegates has been published in the *Record* (March 25th, page 396).

Sectional Meetings.—Full arrangements have been made in connection with all the papers with the exception of the one entitled "New Discoveries in Therapeutic Agents." Several possible writers on this subject are being approached and an announcement will be made shortly.

Social Functions.—It has been decided where all the social functions will be held. At the last meeting of the Provisional Committee a small sub-committee was appointed to make enquiries regarding the entertainments which will be provided at the "At Home" of the two Divisions and the Banquet. The following are members: Messrs. W. Shipley (Chairman), Yarmouth; J. H. Poles, Whittlesey; W. H. Dennett, Fakenham; H. P. Standley, Norwich, and B. A. Claxton, Norwich.

Excursion.—Enquiries have been made and it has been decided to have an excursion into the Broads country which will include a motor-coach trip and a sail to the main places of interest. Tea will be provided at one of the villages on the route. Tenders have been submitted by the leading coach proprietors and the final plans will be made soon.

Victoria Benevolent Dance.—It has been decided to hold this function in the Town Hall. The room provided will be suitable and arrangements can be made for catering, etc. The Town Hall has been viewed by representatives of the Ladies' Guild and they are making the necessary arrangements.

PROVISIONAL PROGRAMME: YARMOUTH CONGRESS, 1939*

SUNDAY, JULY 23RD:

Evening.—"At Home" as guests of the Eastern Counties and Lincolnshire Divisions (Winter Gardens Ball Room). 8.30 p.m.

*This is a virtually completed version of the draft Provisional Programme published in our issue of March 25th, page 394.—*Editor.*

MONDAY:

Morning.—Civic Welcome: 10.30 a.m.; Opening of Exhibition of Drugs and Instruments, 11 a.m.; Paper: "Causes of Deaths among Calves in Dairy Herds," Dr. Lovell. 11.30 a.m.

Chairman, Mr. T. J. Bosworth; Vice-Chairman, Mr. Hugh Begg; Recording Secretary, Mr. J. S. Paterson; Opener of Discussion, Mr. T. Wilson; Speaker, Mr. P. R. Turner.

Afternoon.—Films: 3 p.m. A number of films of scientific interest (supplied by Bayers, Ltd.) will be shown at the Town Hall.

Evening.—Civic Reception: Winter Gardens Ball Room, 9 p.m.

TUESDAY:

Morning.—Paper: "Infertility in the Mare associated with Irregularities in the Oestrus Cycle." Mr. F. Day, 10 a.m.

Chairman, Sir F. Hobday; Vice-Chairman, Mr. H. H. Truman; Recording Secretary, Mr. J. G. Murray; Opener of Discussion, Professor J. F. Craig; Speaker, Mr. E. Brayley Reynolds.

Paper: "Bovine Sterility." Dr. John Hammond, 11.30 a.m.

Chairman, Professor J. Buxton; Vice-Chairman, Mr. J. R. Barker; Recording Secretary, Mr. J. G. Murray; Opener of Discussion, Professor Nicholson; Speakers, Professors W. C. Miller, Mr. J. R. Barker, Mr. W. H. Wortley.

Afternoon.—Demonstrations: 2.30 p.m.; Exhibition of Poisonous Plants—Institute of Animal Pathology; Exhibition of Poultry Diseases—Institute of Animal Pathology; *Post-mortem* Technique on the Pig, Mr. H. Burrow; *Post-mortem* Technique on the Fowl, Mr. C. A. McGaughey; *Post-mortem* Technique on the Bovine, Mr. H. M. Salusbury; *Post-mortem* Technique on the Dog, Dr. J. R. M. Innes; Exhibition of Useful Instruments suggested by Practitioners; Exhibition of fittings for protection of animals against gas warfare, Colonel R. J. Stordy; Exhibition: "Pig Diseases," Mr. J. M. Penhale (Ministry of Agriculture).

Tea will be provided by Mr. and Mrs. Shipley.

Evening.—President's Reception: Town Hall. 8.45 p.m. for 9 p.m.

WEDNESDAY:

Morning.—Paper: "Diseases of the Digestive System of Young Pigs." Dr. Manninger, 10 a.m.

Chairman, Dr. W. H. Andrews; Vice-Chairman, Professor Dalling; Recording Secretary, Mr. B. A. Claxton; Opener of Discussion, Mr. J. O. Powley; Speakers, Professor Kearney, Mr. G. S. Muir, Mr. F. L. Gooch.

Paper: "The Centralised Veterinary Service." Mr. D. A. Cabot, 12 p.m.

Afternoon.—Annual General Meeting: Town Hall, 3 p.m.; Congress Photograph.

Evening.—Banquet: Town Hall. 7 p.m. for 7.30 p.m.

THURSDAY:

Morning.—Paper: "The Recent Advances in our Knowledge of Diseases associated with Mineral Balance in the Blood of Ruminants." 10 a.m.

Chairman, Major James; Vice-Chairman, Mr. A. Spicer; Recording Secretary, Mr. H. P. Standley; Opener of Discussion, Dr. H. Dryerre; Speakers, Mr. W. L. Little, Mr. J. R. Barker, Professor Nicholson.

Ladies' Golf Competition—Secretary: Mrs. Shipley.

Afternoon.—Excursion: A motor tour of the Broads, to include a motor-launch trip to the main places of interest. 2.30 p.m.

Gentlemen's Golf Competition—Secretary: Mr. T. J. Bosworth.

Evening.—Victoria Benevolent Dance: Town Hall.

FRIDAY, JULY 28TH:

Morning.—Paper: "Joint-ill in Lambs." Mr. F. Blakemore, 10 a.m.

Chairman, Mr. W. H. Dennett; Vice-Chairman, Professor Dalling; Recording Secretary, Dr. G. B. Brook; Speakers: Mr. S. E. Hill; Mr. W. Lyle Stewart, Mr. N. S. Barron.

Paper: "New Discoveries in Therapeutic Agents."

Chairman, Mr. J. H. Poles; Vice-Chairman, Major T. G. Heatley; Recording Secretary, Mr. T. A. R. Chipperfield; Speaker on Dogs, Mrs. M. Sheppard; Speaker on Cattle, Dr. A. W. Stableforth; Speaker on Horses, Dr. R. F. Montgomerie.

Afternoon.—Closing Meeting; Council Meeting.

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RESOLUTIONS

(*Resolutions from a number of Divisions in reference to the matter of co-operating with the P.D.S.A. were dealt with earlier in the meeting, arising from the report of the Organising Committee.*)

The following two resolutions were also received :—

(i) *From the Scottish Branch :—*

"While there may be some points on which this Branch may differ from the findings of the Committee on Veterinary Education, this Branch nevertheless is of the opinion that the report offers considerable possibilities for the future of veterinary education and therefore wishes to record its general approval of the report and to register that it is in full accord with the resolution passed by the Council of the National Veterinary Medical Association at its meeting on January 3rd, 1939."

(ii) *From the Midland Counties Division :—*

"That this meeting of the Midland Counties Veterinary Medical Association, held on December 16th, 1938, wishes to place on record its general approval of the salient recommendations of the Loveday Report. These recommendations are considered to be in the best interests of all sections of the profession, and should do much to ensure and secure its continuous advancement."

DATE AND PLACE OF NEXT MEETING

It was agreed that the next meeting of Council be held in Edinburgh at a date to be decided upon by the President in consultation with the Principal of the Royal (Dick) Veterinary College.

The meeting terminated with the passing of a hearty vote of thanks to the President for his conduct of the proceedings.

N.V.M.A. DIVISIONAL REPORT

Sussex Veterinary Society*

MEETING AND LUNCHEON AT BRIGHTON

A meeting of the Sussex Veterinary Society was held at the Old Ship Hotel, Brighton, on Friday, January 20th, 1939, when the following members were present: The President, Mr. Henry Taylor, in the Chair; Messrs. W. P. Blount, J. B. Dier, H. Scott-Dunn, J. I. Edgar, J. Edwardson, A. L. Farrant, S. Gourley, W. R. Hill, S. E. Holmes, W. H. Kirk, F. Marks, G. H. K. Peace, J. W. R. Pearce, J. W. Pritchard, C. Roberts, M. L. Somervail, A. Spicer and A. L. Walther. The following attended as visitors: Ll. E. W. Bevan, R. E. C. Bullen, A. R. Green, M. I. Hearden, and P. R. Turner.

The Secretary reported that the minutes of the last meeting were in the hands of the publishers and would appear in the *Veterinary Record* very shortly.

Obituary.—The President said it was with deep regret that they had learnt of the death of one of the members of the Society—Mr. F. W. Willett, and asked all present to stand in silence for one minute as a tribute to his memory.

Mr. J. W. Pritchard, who attended the funeral on behalf of the Society, paid a tribute to the memory of Mr. Willett.

Correspondence.—The Secretary reported that messages of regret for inability to attend the meeting had been received from Messrs. W. M. Brancker, H. W. Steele-Bodger, T. A. R. Chipperfield, T. Dalling, Sir Frederick Hobday, L. Jordan, C. R. Lawrence, D. H. MacDonald, F. B. O. Taylor, E. P. Thorne and J. F. D. Tutt.

Resignations.—The resignation of Mr. W. G. S. Angus owing to his having been transferred from West Sussex to Cardigan, Wales, was received with regret.

Nominations.—The following veterinary surgeons were nominated for membership: Captain R. E. C. Bullen and Mr. A. Ronald Green.

The Secretary reported that a long letter had been received from the N.V.M.A. Advisory Committee on Poultry Diseases, but owing to the fact that this Society had recently organised a Poultry Course for its members, he did not propose to read the letter.

At a previous meeting it had been decided to send a donation of one guinea to the International Congress Delegates' Fund, but owing to pressure of work, the Secretary had omitted to forward the cheque immediately after the meeting, and when he wrote shortly afterwards he was informed that the Fund had then closed, so the money had not been sent.

Mr. J. W. Pritchard said he would like to convey the hearty congratulations of all present to Mr. Blount on his recent award of Dr. of Philosophy.

The Loveday Report.—The President requested members to peruse the Loveday Report with a view to sending a resolution to headquarters at the next meeting. Mr. Taylor gave a brief résumé of some of the salient points of the report, mentioning the suggested three years' course at a University and two years at a veterinary college instead of, as at present, the whole five years spent at a veterinary college, and also the question of the inclusion of laymen on the Council.

Major Hamilton Kirk said he would like to stress the fact that it was most essential for all members thoroughly to peruse the Loveday Report before passing any resolutions, as unfortunately he believed there were some Divisions who had passed such resolutions and members attending them had not even so much as seen the cover of the report. In assessing the merits, or otherwise, of the Loveday Report they must consider the interests of posterity, not only the interests of to-day, because it was the man coming after them who would condemn them if they adopted the wrong policy now. Some of our leaders had been very severely criticised for their actions and it would be a great pity if their names went forth as making a mistake also.

Papers.—The following papers were now presented and discussed: (1) By Mr. P. R. Turner, "A Few Observations on Bovine Pasteurellosis"; (2) By Mr. Ll. E. W. Bevan, "Research and its Value to the Practitioner."

[These papers, and a report of the discussions which followed their presentation, are reproduced at the commencement of this issue. —*Editor.*]

A very hearty vote of thanks to Messrs. Bevan and Turner was unanimously passed. The meeting then adjourned for tea.

W. P. Blount, *Hon. Secretary.*

*Received for publication March 7th, 1939.

Concerned as to the extent to which farmers are discouraged from breeding horses by the competition of imported foreign animals, the Derbyshire Agricultural Committee has urged the Minister of Agriculture to assist the agriculturists of the country in this matter.

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The 18th International Congress of Agriculture will be held at Dresden from June 6th to 12th this year. The agenda is divided into nine sections, with 37 main subjects. Rural policy, farm management, agricultural instruction and propaganda, agricultural co-operation, cultivation, fruit and animal production, are among the chief sections.

POULTRY INDUSTRY BILL

PREVENTION OF LOSSES FROM DISEASE

In the House of Commons, on Friday of last week, Sir R. Dorman-Smith, Minister of Agriculture, presented the Poultry Industry Bill, to secure improvement in the health and quality of live poultry, and in the marketing of poultry and eggs; for making better provision for securing the marking of preserved eggs, and the enforcement of the Merchandise Marks Acts, 1887 to 1938, as respects imported eggs, and for regulating the importation of poultry and eggs.

The Bill, which is founded upon recommendations made by the Reorganisation Commissions for Eggs and Poultry and on the report of the Poultry Technical Committee, contains proposals for carrying into effect the policy announced by the Government last July for assisting the poultry industry by improving marketing arrangements and checking the heavy loss now suffered by producers through poultry disease. The value of the annual output of the home poultry industry has been estimated at £30,000,000. The loss from disease among adult laying birds in England and Wales alone is believed to be more than £4,000,000 a year.

The Reorganisation Commissions drew attention to the large and rapid expansion that had taken place in the home poultry industry since the War, and particularly to the fact that production had been doubled during the ten years between 1925 and 1934. They pointed out that this increase in productive capacity had not been accompanied by a corresponding development of marketing facilities; and the marketing schemes they prepared under the Agricultural Marketing Acts, 1931 to 1933, were designed to remedy this deficiency. They also commented upon the losses suffered by the poultry industry from disease and the increase in mortality which they feared was also, in part at least, the result of the rapid expansion. It was as a result of their recommendation that the Poultry Technical Committee was set up under the Chairmanship of Sir Duncan Watson; and the report of this Committee with its recommendations for the control of the distribution of poultry stock met with a cordial reception throughout the industry.

The agricultural marketing schemes prepared for the consideration of producers by the English and Scottish Reorganisation Commissions were discussed in great detail and over a period of many months. Producers as a whole, however, did not see their way to accept the marketing schemes proposed by the Reorganisation Commissions; and in any event producers' schemes would not have effected any direct control over the distributive side of the industry.

In these circumstances the marketing provisions of the Bill have been designed to secure the standardisation of the home product and thus to increase its competitive strength in the home market. The Bill has been drafted in consultation with representatives of the producing and distributing interests, and also with representatives of those local authorities which will be responsible for enforcing some parts of it.

The Contents of the Bill

Poultry Commission and Advisory Committees

There is to be set up a Poultry Commission consisting of a chairman and up to eight other members, all of whom will be independent of the industry (Clause 1). The Commission will keep under review matters relating to the maintenance and improvement of the health and quality of poultry stock and eggs for hatching, and the production, marketing, and consumption of poultry and poultry products. It will advise and assist Ministers in matters relating to the poultry and egg industry; and it will administer the stock improvement and marketing provisions.

The Commission will be assisted by a stock improvement advisory committee and a marketing advisory committee, each of which will consist of representatives of the various interests concerned and up to four additional members appointed by Ministers. The expenses of the Commission, which include the cost of inspection and enforcement, are estimated at £80,000 to £90,000 a year.

Stock Improvement Provisions

The stock improvement proposals (Clauses 2 to 6) are based on the report of the Poultry Technical Committee for Great Britain. This report emphasised the crippling effect on the poultry industry of the heavy losses due to disease and stated that this was one of the most vital problems affecting the industry's prosperity; and it urged that nothing less than a system of control of distributors of poultry stock would be likely to lead to substantial improvement in any reasonable period of time.

The proposals in the Bill contemplate that, subject to such exemptions as the Commission may decide to allow, every distributor of poultry stock (which means for this purpose fowls not intended for immediate slaughter), hatching eggs, or day-old chicks, including dealers and hatchery-men, must register with the Commission, and would thereafter be subject to inspection by agents of the Commission. The Commission are given powers to draw up regulations to be observed by these distributors. At the outset, these regulations would no doubt be drawn so as to enable the Commission to deal with glaring malpractices; but later, as and when the Commission became equipped to proceed further, it is likely that regulations constituting something of a "minimum health and quality standard" for poultry stock would be formulated, to which distributors would be required to conform, with penalties for offences, and a possibility of revocation of registration by the Courts where such a course was desirable to protect the industry from diseased or bad stock.

The above powers are to be found in Clauses 2 and 3. Clause 4 charges the Commission with the duty of preparing and administering an accreditation scheme, on a voluntary basis, designed to encourage breeders to take the necessary steps, by way of exact recording and the elimination of unsuitable breeding fowls, to produce breeding stock of a high standard of quality for the replenishment of the industry. Breeders accredited under this scheme will, it is contemplated, receive certain free veterinary services (blood-testing and *post-mortem* examinations) from the State Veterinary Service, and would also be awarded premiums calculated to recompense them in a measure for the extra expense and labour involved in complying with "accredited" standards. With the general raising of stock quality, and the lowering of mortality which the Bill is designed to secure, it is considered that the payment of premiums under the accredited scheme would only be

justified for a limited period. The proposal is that premiums on a diminishing scale should be payable over a period not exceeding seven years, and that the total sum paid in premiums should not exceed £250,000 over the whole period. Clause 5 provides for a somewhat similar accreditation scheme, but without premiums, for hatcheries.

In the Government's announcement of July last, reference was made, under the heading of "Stock Improvement," to research and to progeny-testing. As regards the former, proposals for the establishment of a research station to investigate the obscure causes of poultry mortality have been formulated and are under consideration. As regards progeny-testing, which means the intensive study and investigation of poultry matings with the object of producing a stock of exceptional quality, it is intended, as indicated in the Government announcement, that the Commission should be asked to formulate a scheme. This can be done under the general powers of the Bill.

Guarantee of Quality

The general purpose of the marketing provisions of the Bill is to secure that eggs and dead poultry shall be graded for sale to the consumer. It is expected that the guarantee of quality which accompanies standardisation will increase the demand for the home product.

After an appointed day it will be an offence to sell or expose for sale dead poultry, eggs, and egg products unless they are graded and marked. Producers of eggs and poultry who merely sell wholesale their own products will not be subject to this requirement. Hotel and restaurant sales will be exempt, and provision is made for further exemptions.

Subject to these exemptions the requirement to sell graded produce will apply throughout both the wholesale and the retail trade. In the retail trade enforcement will be in the hands of those local authorities which administer food and drugs legislation; but the supervision of the wholesale trade will rest with the Commission. The Bill requires the registration of wholesale traders and their premises.

Import Regulation

Powers are conferred on the Board of Trade to regulate imports of live poultry and poultry products if it appears that this is desirable to secure the stability of the market for such commodities. The Board of Trade will also be empowered to regulate the importation of eggs in shell if, in their opinion, such a course is desirable to ensure the effective operation of any organised and comprehensive arrangements for the storage of eggs that may be undertaken by bodies of persons engaged in the industry with a view to modifying the seasonal variation in supplies and prices.

Other provisions of the Bill include the following: From an appointed day all imported eggs will have to be marked as having been preserved by some process unless they are specifically exempted from that requirement by order or licence. There will be increased penalties for the removal from imported eggs of marks indicating their origin. During a period of five years from the passing of the Act £50,000 will be made available in loans for the establishment or extensions of producers' co-operative packing stations, and in grants for demonstrating methods of packing dead poultry.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

May 4th.—Meeting of the Central Veterinary Society at the Conway Hall, W.C.1, 6.30 p.m.

May 4th.—R.C.V.S. Council Election. Last day for nominations.

May 8th.—Meeting of the Editorial Committee, N.V.M.A., 4 p.m.

May 8th.—Animal Management Examination begins.

May 15th.—Rome Congress on Comparative Pathology begins.

May 18th.—R.C.V.S. Council Election Voting Papers issued.

May 25th.—R.C.V.S. Council Election Voting Papers due.

June 1st.—**Annual General Meeting, R.C.V.S.**

June 8th.—D.V.S.M. Examination begins.

June 20th.—R.C.V.S. Committee Meetings.

June 21st.—R.C.V.S. Committee Meetings.

June 21st.—**R.C.V.S. Annual Dinner.**

June 22nd.—R.C.V.S. Committee Meetings.

June 23rd.—R.C.V.S. Committee and **Council** Meetings.

July 23rd—28th.—N.V.M.A. Congress at Great Yarmouth and Gorleston-on-Sea.

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PERSONAL

Distinction for Colonel G. K. Walker.—All members of the profession will join with us in congratulating Colonel George Kemp Walker, C.I.E., O.B.E., V.D., F.R.C.V.S., of Abingdon, upon the high honour of appointment as a Deputy-Lieutenant for the County of Berkshire.

Colonel Walker, who is a Fellow and Member of the Council of the Royal College of Veterinary Surgeons, has held various civil appointments, including those of assistant bacteriologist to the Government of India; chief superintendent of the Civil Veterinary Department, Punjab; Professor and Principal of Punjab Veterinary College, and superintendent of the Civil Veterinary Department at Bombay.

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On Leave.—The following officers in the Colonial Veterinary Service arrived home on leave during the month of March: Messrs. H. R. Binns (Nyasaland), R. S. Marshall (Nigeria), and C. R. Turbet (Fiji).

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R.C.V.S. OBITUARY

Hogben, Hugh Percival, 26, Manor Road, Folkestone. Graduated London, December 20th, 1895. Died April 21st, 1939; aged 66 years.

McKie, William Blenheim, P.O. Dealesville, O.F.S., S. Africa, Captain S.A.V.C. Graduated Glasgow, April 18th, 1887. Died March 18th, 1939; aged 74 years.

Tipper, Lawrence Clarke, Ribbesford, Wake Green Road, Moseley, Birmingham. Graduated London, April 2nd, 1877. Died April 22nd, 1939; aged 84 years.

Mr. Lawrence C. Tipper, M.R.C.V.S.

We record with much regret the death of Mr. Lawrence Clarke Tipper, M.R.C.V.S., chairman of the Birmingham and Midland Chamber of Agriculture, and one of the oldest members of the Midland Counties Veterinary Medical Association, who passed away at Marseilles on board the ship on which he was returning from New Zealand.

In the course of an extended tribute the *Birmingham Post* observes: "That he should have undertaken a journey to the Antipodes at the age of 84 was typical of the man. To the end he retained the energy and enthusiasm that throughout his long life marked his advocacy of the varied causes he espoused. Until he was 70 Mr. Tipper was unable to travel extensively; but in his later years he visited the West Indies, Canada, South America, South Africa, China and Japan. In 1930 he went to New Zealand and Australia with the Empire farmers' party, and in 1933 attended the World's Grain Exhibition and Conference at Regina, Saskatchewan. Whenever possible, he sought out Birmingham men who had emigrated to the Dominions or Colonies, and on his return never failed to urge that young men of the right type should be given opportunities to start life afresh in the sparsely populated spaces of the Empire. He was a consistent supporter of the Middlemore Emigration Home.

"Mr. Tipper, who was born on May 20th, 1855, was descended from a family that had been established in the Midlands for more than 300 years. In his early childhood he came to Birmingham and was educated at King Edward's School, New Street. One of his earliest recollections was of receiving the Midland Institute chemistry prize at the hands of Charles Dickens. Later, he attended the Royal Veterinary College, London, where he won the FitzWygram scholarship.

"The welfare of British agriculture was a matter of deep concern to him. He was a member of the old Midland Farmers' Club and later of the Warwickshire and Worcestershire Chambers of Agriculture. It was largely owing to his efforts that the Birmingham and Midland Chamber of Agriculture was established. He attended many Central Chamber meetings in London, and was a member of the Royal Agricultural Society.

"On several occasions Mr. Tipper was put forward as a Parliamentary candidate, once for the Bordesley Division, when he withdrew in favour of Jesse Collings. When he was put forward for South Birmingham, he withdrew in favour of Mr. Amery. In 1906 he contested Ilkeston in the Tariff Reform interest, but was defeated. After the War he gave up party politics.

"Before the extension of the boundaries of Birmingham, Mr. Tipper was a member of the King's Norton Council and a Worcestershire County Councillor for Wake Green Ward. At one time he was a resident in Yardley parish and showed a characteristic interest in parish affairs."

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ARMY VETERINARY SERVICE

Movements of Officers

On expiration of sick leave, Major H. Stephenson, M.C., was posted to the Southern Command for duty.

Major G. Williamson, O.B.E., was posted from Salisbury to York for duty on March 16th.

Major J. J. Clune, who arrived home from India on February 7th, is now doing duty at Larkhill.

Major H. D. Lewis sailed for Palestine on April 13th in relief of Major D. A. Gillmor. The latter will proceed to York for duty on return to this country.

The following officers are at present in this country on leave ex-India: Major A. J. Kelly, Captains J. A. Langley, D. I. C. Tennant, J. McL. Ross, J. D. Daly; Major C. U. K. Porter, Major J. S. Keane, and Lieutenant D. M. Stewart on sick leave.

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ROYAL COLLEGE OF VETERINARY SURGEONS

The Registrar of the Royal College of Veterinary Surgeons announces that the addresses of the following members are unknown to him. The assistance of members in obtaining the required addresses would be welcomed.

Name	*Formerly of*
Anderson, T.	Bray, Co. Wicklow.
Ashley, F. G.	Sarisbury, Southampton.
Bate, J. W.	Northwich, Cheshire.
Cawdle, W. E.	Manaton Green, nr. Newton Abbot.
Farrelly, M.	West Mersea, Essex.
Fern, E.	Folkestone
Greaves, W. J.	London, S.E.22.
Hill, J.	Northwich, Cheshire.
Hind, J. H.	Skegness, Lincs.
Hyland, F. J.	Banchory, Kincardineshire.
Kennedy, W. R.	East Molesey, Surrey.
Leaver, E. A.	Shrewsbury.
Little, S.	Cockermouth, Cumberland.
McEldowney, J. P.	Magerafelt, Co. Derry.
Phipps, W. E.	Summertown, Oxford.
Price, R.	Chester.
Priestner, J. T.	Altrincham, Ches.
Roemmele, H. M.	Canniesburn, Glasgow.
Smith, W. R.	Brechin, Angus.
Stokoe, R.	Kimbolton.
Thompson, F. W.	Basingstoke.
Tyler, C.	Bournemouth.
Walker, J. P.	Tranent, E. Lothian.
Whitemore, H. E.	Langport, Som.
Wilkinson, A.	Blackley, Manchester.

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R.C.V.S. Central Library for Animal Diseases

Library Hours

As so few readers have availed themselves of the extra hours of opening on two evenings in the week, it has been decided to revert to the original Library Hours, *i.e., Mondays to Fridays*, 10 to 5, *Saturdays*, 10 to 12.30.

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MAKERS OF JOHN HUNTER

In the course of the Hunterian Oration delivered before the Royal College of Surgeons of England on February 14th, Dr. W. Sampson Handley said that his main object was to trace the intellectual descent of John Hunter from William Harvey, for he believed it had been overlooked. In his view, it was through James Douglas, his brother John Douglas, and William Hunter that John Hunter learnt the methods of Harvey which he applied to surgery with such far-reaching results.

"James Douglas, the teacher and exemplar of William Hunter, came like the Hunters, of the class of Scottish minor lairds which corresponds to the English yeoman class of which Harvey

sprang. In 1706 he announced a course of human and comparative anatomy. In 1707 he published the first extant work on comparative anatomy, called *A Comparative Description of the Muscles in Man and a Quadruped.* He says: 'I took all the descriptions from ocular inspection, in dissection, using twelve subjects to make sure. . . . I chose a dog for comparison, because young students of anatomy may readily procure so common a subject.' After 25 lectures on anatomy, illustrated by his own dissections, he passed to comparative anatomy, and then to a detailed syllabus of physiology. This was 41 years before John Hunter arrived in London.

"John Douglas, doubtless helped by James, who was always ready to serve others, applied his brother's anatomical lessons to surgery and was the first surgeon to practise suprapubic lithotomy. He was led to the operation by instances within his knowledge of recovery after penetration of the bladder by the horn of a bull, by gunshot and by a sword.

"William Hunter, born at Long Calderwood, Lanarkshire, was a serious and quiet boy, ten years older than John. In 1740 for a year he studied medicine in Edinburgh under Monro the first, but in 1741 he decided to try his fortune in London. He was the pioneer who prepared the way for John. In succession to Samuel Sharpe of Guy's Hospital he became lecturer to a society of naval surgeons. He was fortunate in becoming assistant to Dr. James Douglas. William lived in Douglas's house, and became affianced to his daughter. Her early death broke the romance, and he never married. His paternal instincts found an outlet in the education of his brother John, whom he vainly tried to make into an Oxonian, and later in his care of his sister's brilliant children, Matthew and Joanna Baillie. In 1746 William Hunter advertised his first private course of anatomy, as James Douglas had done 40 years earlier, and to the end of his life anatomy and the teaching of it were his ruling interests. But he took up the practice of man-midwife and became Physician to the Queen. In this, as in many other respects—for instance, the collection of editions of Horace—he followed closely the footsteps of James Douglas.

"In 1767 he was elected a Fellow of the Royal Society, and in 1768 professor of anatomy in the newly established Royal Academy. At this period of his life William Hunter had become almost a national figure—a famous anatomist, a friend of the Sovereign, and the trusted physician of the Queen, a celebrated dilettante and princely collector, meeting artists and literary men on their own ground. Little can he have thought that his brother John was destined to surpass him in reputation. He died in 1783 a few days after leaving a sick-bed to lecture at his Great Windmill Street school. He bequeathed his museum to the University of Glasgow, his old alma mater.

"Can it be doubted that the mainspring of John's career was a fierce determination that he, the ne'er-do-weel of the family up to the age of 20, would show his ability to surpass William's brilliant achievements? The rivalry, at first unconscious and for many years quite friendly, exploded in the quarrel which separated the brothers in their latest years, only to be partly made up just before William's death."

* * * * *

A GOLD SOL TEST FOR BOVINE MASTITIS

"Eradication of bovine mastitis is one of the major problems confronting dairy research, and the solution of the problem depends to a large extent on trustworthy methods for detecting udder infections, particularly of the sub-clinical type," states R. Aschaffenburg, of the National Institute for Research in Dairying, University of Reading, in a letter to the Editor of *Nature* (March 25th). "Many tests have been proposed, but none appears to compare in reliability with the method of isolating the causative micro-organisms by plating on selected media.

"A promising chemical test was recently put forward by Rowland[1] in which the characteristic changes in the percentage distribution of the milk proteins are utilised. Rowland showed that even in sub-clinical mastitis the percentage of casein-nitrogen falls below the normal level. This loss in casein is primarily out-balanced by a rise in globulin, and this suggested the possibilities of working out a method similar to Lange's gold test for cerebrospinal fluid, a test which is largely bound up with pathological changes in the globulin content of this body liquid. Owing to the predominance of casein, no characteristic results could be obtained with whole milk, but a sensitive test was procured with casein-free milk serum prepared in the manner described by Rowland and titrated back with sodium hydroxide, using methyl red as indicator, to a *p*H in the region of 6·0 to 6·5. When 5 ml. of a red gold sol prepared in accordance with Lange's directions are mixed with 1 ml. of this serum, the colour of the gold sol remains unaffected by sera from milk of healthy individual cows or quarters, but turns instantaneously to violet or blue in the case of even slight infection of the udder.

"The results so far of this simple and rapid test seem to correlate particularly closely with the bacteriological findings regarding the presence or absence of mastitis-producing organisms in the milk. Experiments with dilution series suggest that the correlation between globulin content or globulin/albumin ration and the intensity of the colour changes is not of a simple nature, and preliminary investigations indicate that the proteose-peptone fraction of nitrogenous compounds of the milk also participates in the reaction.

"A detailed study of all the factors involved is now in progress."

[1] *J. Dairy Res.* **9**. 47. 174. (1938.)

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MANGANESE DEFICIENCY

We reproduce the following annotation from the *British Medical Journal* because we understand that manganese has been pressed into the notice of veterinary practitioners recently as an agent which is capable of preventing sterility and other conditions. The annotation reveals what is actually known about the action of this element.

"Manganese is a constituent in the well-known compound syrup of hypophosphites, though curiously enough in the syrup of glycerophosphates it is replaced by magnesium. The action of substances used as tonics is often debatable and obscure, but there is a possibility that manganese may be a significant element in nutrition. In young chickens manganese deficiency leads to slipped tendon or 'perosis,' a deformity of the tibio-metatarsal joint.[1] It appears that manganese in small amounts is a necessary constituent of bone in the chick, and in its absence the shafts of the bones become shortened and thickened. The eggs of hens which are fed

[1] *Science*, 1938, **87**, 18.

on a diet of low manganese content produce chicks with short legs and wings and 'parrot beak,' but the injection of a minute dose of manganese directly into the albumen of such eggs just before incubation results in normal development of the embryos and an increase of hatchability.[2] Although gross symptoms of perosis have not been recognised in animals other than the fowl, manganese is present in the bones of other species, particularly in the shafts and head. Of all the vertebrates the mammals contain least manganese; there is from five to ten times as much present in birds, reptiles, batrachians, and fish.[3] It is interesting to speculate whether deficiency of manganese plays any part in skeletal dystrophies in man, and material for such speculation can be found in Ethel Browning's[4] interesting review of the rôle of manganese in plant and animal economy. Manganese is an essential factor in plant metabolism and growth, being concentrated in those parts of the plant where reproductive activity is highest. It appears to be essential for the action of the oxidase ferment 'laccase,' which takes part in a host of natural phenomena, such as the transformation of the latex of the lac tree to black varnish, and the darkening of many fruits on contact with air. It is a normal constituent of practically all animal tissues, though in a much smaller degree than in plants, but it is not known whether it is an indispensable constituent of the animal organism. The absorption of manganese is said to be slow and dependent on the acidity of the gastric juice. Excretion takes place mainly by the stools. In children the amount retained is proportional to the amount injected. It is suggested that the diet for children should contain between 0·2 and 0·3 mg. of manganese per kilogramme of body weight. A diet fairly high in manganese would contain meat, eggs, milk, bananas, potatoes, tomatoes, orange juice, cod-liver oil, whole-grain cereals, and fruits and vegetables such as carrots, apples, and prunes. A diet composed chiefly of milk and refined cereals would be lower in manganese than was consistent with full growth and development. Manganese is almost certainly not required for blood formation, but there is evidence which suggests that it may be necessary for growth and reproduction. It is difficult, if not impossible, to give experimental animals a diet which will be deficient in manganese alone, but, nevertheless, some of the effects of such deficiency are known, notably in connection with reproduction. David Perla has shown that feeding rats with excess vitamin B_1 results after one generation in interference with lactation, loss of the maternal instinct, cannibalism, and progressive loss of fertility. Deficiency of manganese in the diet causes similar changes in the maternal instinct and reproduction, and Perla therefore argues that manganese may be essential as an oxidative catalyst in the utilisation of vitamin B_1 in the tissues. To test the hypothesis that the tissue manganese may be exhausted by an excess of vitamin B_1 he added small amounts of manganese to the test diets, and showed that those rats receiving the manganese supplement did not undergo the changes described above. According to him, therefore, manganese is essential in the utilisation of vitamin B_1 by the tissues."

[2]Ibid., 1937, 86, 328.
[3]*Ergebn. Vitamin Hormonforsch.*, 1939, 2, 192.
[4]*Sci. Progr.*, 1937, 32, 276.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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CO-OPERATION WITH THE PEOPLE'S DISPENSARY FOR SICK ANIMALS OF THE POOR

To the Editor of the Veterinary Record

Sir,—I feel that I am obliged to make some reply to Mr. Gould's "election" address, and his assistant Mr. Morgan's somewhat less verbose effort in your issue of April 1st.

I have no inside information, and do not ask for any. Common sense tells me that it is always better to have friends than enemies, and I see no reason to doubt that the elected representatives of the profession have acted in the best interests of the profession. They certainly have had all the inside information, whereas the critics have had to depend upon their imagination. There are many who know that I have always opposed "centralised clinics," and advocated the decentralised system. I have pointed out that the dangers of centralised clinics are that the veterinary surgeon is not in complete professional and executive control, and further, such clinics serve as a "college" for the manufacture of quacks. Clinics may do some harm to the profession, but the multitude of "animal specialists," etc., who are manufactured by clinics are a grave danger and bid fair to swamp many a qualified practitioner, if there is not some check to their production. Surely if an opportunity is given for us to exert some control on animal clinics, and on the manufacture of quacks, we are not acting in the best interests of the profession or of the public if we let such a chance pass by.

In the main I agree with the sentiments expressed in the last five paragraphs of Mr. Gould's letter; in fact, to my mind, they make all his other literary efforts redundant. I concede this in spite of the fact that paragraph three appears to contradict paragraph two.

As regards Mr. Morgan, whom I well remember as a student, may I point out that the duties and conduct of a professional man engaged in the healing art are set out to perfection by Hippocrates in the so-called Hippocratic oath, and I would again presume to be his mentor by advising him to procure a copy and inwardly digest it—no other instructions will be necessary.

In my letter published on March 25th, 1939, no mention was made of any particular species of domestic animal, but from his remarks it is reasonable to suppose that during his post-graduate adolescence, he has developed a "He-man" complex.

I look forward with some anxiety to next October for, if Professor Wright and I can inculcate such virility into our students parents will flock to Camden Town to enter their offspring!

Yours faithfully,
J. McCunn.

Royal Veterinary College and Hospital,
Great College Street,
Camden Town,
London, N.W.1.

MEAT INSPECTION AND POULTRY

To the Editor of the Veterinary Record

Sir,—In reply to Dr. Blount's letter under the above heading in last week's *Veterinary Record*, I should like to make the following observations.

Many of the questions asked by Dr. Blount are, to my mind, answered quite clearly in the articles which he honours with his criticism. I think, however, that his criticism is most exaggerated where he suggests that I advocated condemnation of birds on account of the more or less benign conditions named by him. I did not think it possible that my remarks could be so interpreted. Also, I can only commend as being very practical, from a meat inspection viewpoint, the reference by Messrs. White and Ellis to "fatty liver." Nevertheless, I am confident that my own staff are completely competent in distinguishing between tuberculosis of the liver and "fatty liver," and would never dream of confiscating on account of the latter. It should be noted that Messrs. White and Ellis in their excellent contribution point out that, in the "fatty liver" cases examined by them, various pathological conditions were present at the same time.

I agree with Dr. Blount that the subject is one worthy of discussion at an N.V.M.A. Congress.

Yours faithfully,
L. B. A. Grace.

Meat Inspector's Office,
Central Markets,
Smithfield.
London, E.C.1.
April 25th, 1939.

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To the Editor of the Veterinary Record

Sir,—In reply to Dr. Blount's letter, some of the points raised are irrelevant in that they concern ourselves only, whilst others can be answered by a careful reading of the paper. We feel obliged, however, to reply to his remarks concerning oviduct cysts, as this is a question of scientific interest. The cysts were situated to the right of the midline and their pedicle ended blindly on the right side of the cloaca. Cystic dilatation of the bursa of Fabricius, due to obstruction of its duct, has been described, but such cysts would be in the midline and open into the dorsal and posterior portion of the cloaca. Dr. Blount is doubtless aware of the size of the bursa of Fabricius in the healthy adult fowl. A description and illustration of cysts of the right oviduct will be found in van Heelsbergen's book, together with a reference to a paper dealing with the condition in detail.

Yours faithfully,
E. G. White.

Research Institute in Animal Pathology,
Royal Veterinary College,
Camden Town,
London, N.W.1.
April 24th, 1939.

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BOVINE MASTITIS

To the Editor of the Veterinary Record

Sir,—In his reference to udder infusion Dr. Stableforth advises that the solution should only be left in for four or five minutes, and then stripped out. My experience is that this is futile, and that in such a short period it is not feasible to expect the solution to reach all the foci of infection; some time ago I expressed the view that to ensure success, it must be left in for one hour. I use Entozon in strengths of 1-1250 to 1-1500 and infuse it by means of the Norden Milk Fever Gravity Outfit (substituting a milk syphon for the needle). The quarter is first stripped out, and the solution is run in, in amounts from 16 ounces to a pint, at a temperature above blood heat, but comfortably warm. The quarter is then thoroughly massaged for ten minutes, and at the end of an hour is stripped out, and as a rule all but two ounces of the infused solution is recovered. This is repeated in five to seven days, but not under five days; and in the meantime the affected quarters or quarter is stripped out not less than three times a day.

It is utterly useless to attempt udder infusion in chronic cases with induration, or in acute cases accompanied by marked swelling. In the acute cases, running a high temperature, and where the secretion is very foul, full doses (intramuscular or intravenous) of Soluseptasine have given very encouraging results and in my view, this is the remedy *par excellence*. The dose is repeated in 24 to 48 hours depending on the severity of the case.

Following udder infusion, the quarter treated may not return to its full yield until the next lactation, or it may "dry off" until then.

Experiences with Acriflavine have been disappointing. In the field of surgery, Acriflavine in solutions of 1-1000 has no equal in ensuring rapid healing of wounds by first intention.

Results with vaccines are conflicting. Several years ago, I reported on the results in the *Veterinary Journal*. In some herds, the use of autogenous vaccines made from a series of samples to determine the prevailing bacterial flora has proved of great value not only in control, but in prevention by immunising in-calf cattle three weeks before calving dates. In others, one might as well have used water! Stock vaccines are, in my view, unreliable and their use a waste of time. At the best, they can only be described as of the "hit or miss" type.

Prevention is as a rule easiest. Strict attention to hygiene of the cows and their surroundings, and of the attendants and their utensils is essential. How often does one meet with cases which would be humorous but for their adverse effect on the farm profit! I recollect one instance where the shed was the last word in construction, the cows and attendants spotlessly clean, and the head herdsman possessing sufficient qualifications to have sent the members of the Loveday Committee into raptures, yet the herd could not get a clean milk certificate. The stages taken were observed; in fact, the men nearly took a bath after milking each cow, but the grand finale was when the milk so carefully obtained was poured through a strainer so dirty that it was reasonable to suppose that the sweep had had a "rub-down" with it after his last visit, and this alone was the cause of the trouble.

Yours faithfully,
J. F. D. Tutt.

"Rothiemurchus,"
St. Cross,
Winchester.

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WALES AND THE ANIMAL INDUSTRY

To the Editor of the Veterinary Record

Sir,—Surely Mr. Robert G. McQueen is under some misapprehension when he claims that it is incorrect to say that our little factories and

mills, deriving their raw materials from animals, have been allowed to decay, and in many cases to disappear, and further that the market in some animal products has been so precarious that the skins of small Welsh sheep have been sold with the wool on at a price as low as 4d. each. Derelict little woollen mills that once produced our Welsh flannel, blankets, tweeds, etc., and little leather works, where many kinds of leather goods were manufactured, are there to be seen. Many of us know this only too well. As to the second point, the periodic slump in prices of raw materials of animal origin used in industry, is common knowledge, and has often been the subject of publication. An article by the writer published in *The Times* on the slump of 1933 attracted some interesting communications. One of these expressed agreement with a policy of dealing with raw materials as far as possible in rural factories on the spot. I quoted this at Cardiff. These extraordinary fluctuations in prices and the published references to them would appear to have escaped the notice of Mr. McQueen. I could have supplied him with vouchers at the time.

Having been born in the animal industry I endeavoured at Cardiff to give briefly its history in Wales during my time.

My major point was and is that one of the greatest menaces to our success is the custom we have in Britain of dealing with the industry in several sections, each in a separate watertight compartment, and that those engaged in the various branches of the industry seem to endeavour to make their own section a success without paying due regard to the way in which their method of achievement operated on the successful pursuit of other sections, or the industry as a whole. There are numerous examples of this—considering the cow on a cheese farm to the exclusion of the pig, creating the centralised cheese factory without noting the possible effects on existing farm factories, neglecting to note the store or porker and considering the bacon pig exclusively, considering the milking cow without considering simultaneously the beef producer, and neglecting to associate both with the calf, etc.

As I contended at Cardiff, we must produce, we must sell, we must consume and use. Failure of one means failure of all. But the practice I have alluded to falls far short of the definition of animal husbandry I have given, and which is "the production, care and development of the domestic animal and the use of its products and by-products, during life and after death, with the object of securing from them the maximum benefits to the community."

Mr. McQueen, I fear, provides us with another example in illustration of my main point. He is concerned with a list of animal products which he gives us and which are those dealt with in a Chicago packing house, the methods of which some are endeavouring to introduce into this country. But his interest does not appear to extend beyond this list.

I am well aware of the laudable efforts made by Mr. Roger Duncalfe and others whom I know to make this division a success and with them I would now include Mr. McQueen.

But the story of the animal extends from birth to the ultimate products, whether they be milk, meat, the products of Mr. McQueen's list, or the finished article in the great woollen or leather industries.

I have referred to the questions of fact. Other points are matters of estimate or opinion. If Mr. McQueen would survey the whole problem apart from the division in which he is specifically engaged he would not fail to note the extent to which the two last mentioned industries which I emphasised are affected by our negligent treatment of the animal at one or other of the stages in its history, and how well it is illustrated in the interesting figures resulting from the investigations of the County Council of Worcester which showed in the case of the ox losses amounting to millions of pounds a year, and again he could secure from any manufacturer of woollen goods testimony as to the appalling wastage during the processes in manufacture of a commodity of such general use as a white blanket. These are amongst the losses due to causes that are preventable and though not necessarily associated with or reflecting on the stage in which Mr. McQueen is interested, they are debited against the industry.

As an anatomist whose work dealt with the whole body, alive and dead, I am as much concerned with the woollen and leather industries as with any other section of the problem—in fact, these were in my mind at the time.

If Mr. McQueen would give some consideration to these two products he would, I am sure, agree that rather than having exaggerated the case it has been understated in relation to the whole industry.

The solution to our difficulty, proposed in my Cardiff address, was the establishment of a Faculty that would co-ordinate the efforts of those engaged in the various sections, bearing constantly in mind the needs of the industry as a whole, and the requirements of the nation. This is so in some countries that I know.

I am, Sir,
Yours truly,
SHARE JONES.

Pentrebychan Hall,
Near Wrexham.
April 25th, 1939.

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TO THE EDITOR OF THE VETERINARY RECORD

Sir,—In the *Record* of April 22nd, Mr. R. G. McQueen, of Messrs. W. & J. Dunlop, Ltd., Dumfries, Scotland, criticises parts of Professor Share Jones's paper read before the Welsh Branch at Cardiff recently. The criticism is based apparently on certain portions of the paper which have appeared in the agricultural Press, notably *The Farmers' Weekly*.

Professor Share Jones's paper occupied sixteen-and-a-half columns of your paper. *The Farmers' Weekly* gave the paper two half-columns, and did not even give the title, and it is upon this that Mr. McQueen's criticism is based!

The statement in Professor Share Jones's paper about the decadence of certain small mills and factories in Wales is perfectly correct, and well known to every student of Welsh economy, including Mr. McQueen's fellow countryman, Sir Malcolm Stewart (now Lord Portal). An enquiry into the market for sheep skins in England and Scotland as compared with Wales only serves to increase the force of Professor Shares Jones's plea for a revival of Welsh animal husbandry.

Yours faithfully,
D. J. ANTHONY,
Hon. Secretary, Welsh Branch, N.V.M.A.

Linley Moor,
Bell Street,
Brierley Hill,
Staffs.
April 22nd, 1939.